Subject Index to Volume 59

A

Abdomen, rib cage and, compliance, age and posture effects, 1842
Acclimation: *see* Temperature, and the specific environmental condition
Acetylcholine, airway hyperresponsiveness, ozone-induced, 1918
Acetylene, solubility, tissue volume measurement, edematous lung, 1548
Acid-base balance, β-adrenoceptor blockade effects, hydrogen and potassium flux, exercise in, 336
Acidosis
  diaphragm fatigue, inspiratory resistive loading, 1527
  metabolic, diaphragmatic performance and, 1376
Adenosine, theophylline and, respiratory effects, 1428
Adenosine monophosphate, cyclic, phospholipid retention and, pulmonary, 743
Adenosine triphosphatase
  muscle biopsy, sampling errors, 1228
  myosin, cardiac function and, swimming effects, spontaneous hypertension, 758
Adenosine triphosphate
  depletion, erythrocyte, voluntary hyperventilation and, 1196
  muscle adaptations, marathon running, 149
  muscle fatigue, McArdle's disease, 1991
  muscle metabolism, maximal exercise, 132
  ^{31}P-NMR, exercise patterns, muscle, 101
Adrenaline: *see* Epinephrine
Adrenal medulla
  epinephrine turnover, exercise effects, males, 1061
  glucose turnover and, running, 1640
β-Adrenergic mechanisms, during exercise, poorly controlled diabetes, 1282
β-Adrenergic mediators, retention of instilled phospholipids, pulmonary, 743
Adriamycin: *see* Doxorubicin
Aerobic capacity: *see also* Exercise
  blood viscosity responses and, endurance-trained and sedentary females, 348
  endurance training, skeletal muscle structure and, 320
  exercise modes, incompatibility of, 1446
Aerosol
  citric, pulmonary and cardiovascular changes in hyperreactivity, 354
  deposition
    airway model, 1766
    lung burden of inhaled particles, exercise effects, 1046
  expiratory deposition
    chronic obstructive lung disease, 515
    flow-limiting segments and, 509
  volume-dependent changes, air space dimensions, lung, 875
Afferents
  bronchopulmonary, cigarette smoke effects, awake state, 229
  hilar nerves, hyperpnea of exercise and (horse), 798
  respiratory muscle, fatigue, breathing patterns and, 1152
Aging
  chest wall compliance and, 1842
  plasma catecholamines and, dynamic exercise, males, 1033
  plasma volume changes, marathon runners, 559
  ventilation threshold, exercise training effects, 1472
  ventilatory and arousal patterns, sleep, 1607
  voluntary exercise effects, 826
Air
  distribution, lungs, analysis, children, 1137
  flow: *see* Flow
  pollution: *see* Pollution
  space dimensions, volume-dependent changes, lung, aerosol effects, 875
Airway
  bronchial, gas dispersion, model, 1343
  catheter, near residual volume, location of flow-limiting segments, 502
  central, larynx effects on oscillatory flow, model, 160
  chronic obstruction, respiratory load compensation and, 1947
  conductance, asthma, 1590
  dynamics, peak and maximal expiratory flow, 1733
  endogenous cyclooxygenase effects, lung inflation, 884
  excessive mucus secretions, aerosol deposition in, 1766
  hyperresponsiveness
    leukotriene B_4 effects, 1941
    ozone-induced, thromboxane in, 1918
  impedance, respiratory input and, 492
  mechanics
    leukotriene D_4 effects, allergy and (sheep), 1416
    pulmonary edema effects, 1578
  mechanisms, infantile regurgitation, 716
  obstruction, oxygenation in sleep apnea, 1364
  occlusion, respiratory muscle response, infant, 847
  parenchymal hysteresis, asthma, 1590
  reactivity
    antigen exposure and (sheep), 1866
    inhaled histamine in anesthesia, 1350
  resistance: *see* Resistance
  responsiveness
    antigen exposure effects (sheep), 1874
    calcium chelators and, 92
  upper
    carbon dioxide, breathing and, awake state (pony), 1222
    patency, almitrine effects, 105
    respiratory changes in nasal muscle length, 453
    shunt, respiratory impedance, 1790
  upper and lower, anesthesia effects, hypercapnic ventilation, 1090
Alae nasi, muscle length, respiratory changes in, 453
Albumin
  ^{14}C-labeled, transport across alveolar epithelium (bullfrog), 1290
  ^{125}I-labeled, aortic permeability, exercise effects (cockerel), 985
  serum, elastase and smoking effects, alveolar epithelial permeability (hamster), 96
Alcohol, apnea reflexes and (lamb), 420
Aldosterone
  exercise effects, normoxemic and hypoxemic, 142
  plasma, graded hypohydration levels, exercise-heat stress, 1855
Alkalosis, respiratory, erythrocyte organic phosphates in, 1196
Allergy, mucociliary and respiratory function, leukotriene D_4 effects (sheep), 1416
Almitrine, hypoglossal and phrenic electroneurograms and, 105
Almitrine bismesylate, respiration and, acute hypoxia, awake state, newborn, 18
Altitude
  hemoglobin P_{50}, oxygen transport, exercise and, 749
  high
    headache, internal carotid arterial blood velocity and, 909
    lung and thorax capacity in, 1773
    serum erythropoietin in, plasma renin and, 360
Alveolar clearance: *see* Clearance
Alveolar epithelium
  albumin transport (bullfrog), 1290
  liquid and protein, long-term clearance, awake state (sheep), 928
  permeability: *see* Permeability
Alveolus, surfactant in, 660
Amiloride, transport, tracheal epithelium, 1585
p-Aminohippurate, transport, tracheal epithelium, 1585
Anaerobic threshold
  exercise training effects, aging, 1472
  lactate, detection during exercise, 1936
Anemometry, hot-wire, oscillatory flow, central airway, model, 160
Anesthesia
  aerosolized histamine, tachyphylaxis to, 1350
  airway, hypercapnic ventilation and, 1090
  baroreceptor stimuli, respiratory effects of, 1258
  opioid, breathing and, neonate, 1675
  respiratory mechanics, interrupter technique measurement, 647
  thoracic gas volume, plethysmographic method, 653
Angiography, microcirculation, small pulmonary vessels, 1013
Angiotensin, forearm blood flow, plasma renin activity and, paraplegia, 924
Angiotensin-converting enzyme
  bradykinin degradation and, hypoxic lung (sheep), 1185
  hydrogen peroxide and, acute lung injury, 1995

Angiotensin II, plasma level, endurance athletes, 947
Angiotensinogen, oral contraceptives, exercise and, healthy females, 1690
Ankle extensors, fast- and slow-twitch, overloaded, 639
Antigen
  exposure effects
    airway responsiveness (sheep), 1874
    bronchospasm and (sheep), 1866
Anti-G suit, inflation, effects in 1-G environment, 1145
Anti-inflammatory agents, hypertension, increased vasoreactivity and, pulmonary (sheep), 443
Antioxidant enzymes
  exercise effects, cardiotoxicity of doxorubicin and, 1298
  mitogenic effects of, hyperoxia tolerance, lung, 315
  pretreatment, hyperoxia-induced pulmonary vascular paralysis, 953
Antishock trousers, medical, 1-G environment, 1145
Aorta
  DNA synthesis, hyperoxia effects (pig), 1110
  occlusion, diaphragmatic blood flow and, 1164
  permeability to albumin, exercise effects (cockerel), 985
Aortic body, peripheral chemoreceptor denervation, breathing movements and, fetus (sheep), 575
Apnea
  capsaicin stimulation and, pulmonary C-fibers, 1487
  cigarette smoke effects, awake state, 229
  heart rate changes during, 536
  obstructive
    hypoglossal and phrenic electroneurograms, alkaitrine effects, 105
    respiratory muscle response, infant, 847
  obstructive sleep, nocturnal arterial oxygenation in, 1364
  reflexes, alcohol effects (lamb), 420
  sleep
    metabolic rate and breathing, 384
    young and elderly subjects, 1607
Arachidonic acid
  airway hyperresponsiveness, ozone-induced, 1918
  metabolite blockers, blood flow after pulmonary artery occlusion, 180
Arrhythmias, cardiac, submaximal exercise and, 890
Asthma
  bronchoconstriction in, sulfur dioxide exposure during exercise, 784
  calcium chelators, airway responsiveness, 92
  deep inhalation effects, airway and parenchymal hysteresis, 1590
  exercise-induced, model, 1986
  leukotriene B_4 effects, 1941
  multibreath nitrogen washout, children, 1137
  ozone-induced, thromboxane generation in, 1918
ATA: *see* Atmosphere absolute
Atelectasis, lobar, prostanoids in hypoxic vasoconstriction strength, 72
Athletes: *see* Exercise
Atmosphere absolute, 71, organ blood flow, 1369
ATP: *see* Adenosinetriphosphate
ATPase: *see* Adenosine triphosphatase
Atrophy, muscle, prolonged hindlimb immobilization, 916
Atropine
  ozone exposure and, lung, 1879
  tachyphylaxis to inhaled histamine and, anesthesia, 1350
Autonomic nervous system, glucose production, running and, 1640
Awake state
  fatiguing resistive loads, ventilatory response to (sheep), 969
  liquid and protein clearance, lung (sheep), 928
  nares breathing, switching to tracheostomy breathing (pony), 1214
  opioid receptor agonists, regulation of ventilation and oxygen consumption, 959
  tonic β-sympathetic activity, lung periphery, 979
  uncharged dextran passage, blood to lung lymph (sheep), 580
  upper airway carbon dioxide effects, breathing (pony), 1222
  ventilatory response, nicotine in cigarette smoke, 229

B

Biopsy, muscle, sampling errors, 1228
Biphasic response, hypoxia, awake state, newborn, 18
Blockade
  α-adrenergic, tail vasodilation during heating, 1533
  β-adrenergic
    cardiac response to submaximal exercise, 890
    exercise, poorly controlled diabetes, 1282
    lung periphery, awake state, 979
  β-adrenoceptor effects, hydrogen and potassium flux, exercise and, 336
Blood
  constituents: *see* specific constituent
  pH and carbon dioxide tension, electrode and cuvette, 1660
  sampling, implantable device for, 1665
  uncharged dextran passage to lung lymph, awake state (sheep), 580
  velocity
    internal carotid arterial, high altitude headache and, 909
    submaximal and peak exercise, 722
  viscosity responses, exercise and, women, 348
  volume and density changes, temperature and, 1686
Blood flow: *see also* Circulation; Microcirculation
  bronchial, regulation after pulmonary artery occlusion, 180
  bronchial arterial
    bronchovascular resistance and (sheep), 305
    histamine effects (sheep), 254
  cerebral, headache at high altitude and, 909
  diaphragmatic, costal and crural, 1164
  2,4-dinitrophenol and, normoxia and hypoxia, limb, 698
  muscle, high-speed locomotion, 1322
  organ, 71 atmosphere absolute, 1369
  regional, differences, lung, 1266
  regulation, after pulmonary artery occlusion, 180
  respiratory muscle, endotoxic shock and, 1802
  skin
    menstrual cycle effects, 1902
    plasma renin activity and, paraplegia, 924
  tail, neural control during heating, 1533
Bloodletting, oxygen transport and, high-altitude polycythemia, 1495
Blood pressure: *see also* Pressure
  renin, angiotensin II, and 6-ketoprostaglandin and, endurance athletes, 947
Blood volume: *see also* Volume
  pulmonary, neutrophil kinetics (sheep), 1796
  regional, differences, lung, 1266
Body, water: *see* Water
Bradykinin
  chemoreflexes, skeletal muscle, 56
  degradation, hypoxic lung (sheep), 1185
  increase in pulmonary vascular permeability, hypoxia, retraction of article, 1333
Brain, transsection, pressor reflexes and, 459
Brain stem
  artificial perfusion, chemoreflex gains comparison, 170
  muscular contraction, pressor reflex evoked by, 459
  responses, hypoxia and hypercapnia, 1201
Breathing: *see* Respiration
Bronchial artery, blood flow: *see* Blood flow
Bronchial challenge test, sulfur dioxide exposure, during exercise, bronchoconstriction in asthmatics, 784
Bronchial veins, pulmonary edema and (sheep), 1249
Bronchitis, hypoxic chronic, mechanism of hypoxemia in, 1698
Bronchoconstriction
  antigen exposure effects, airway (sheep), 1874
  blood flow, histamine effects (sheep), 254
  deep inhalation effects, asthma, 1590
  reflex-mediated, leukotrienes, pulmonary and cardiovascular changes, 354
  sulfur dioxide exposure during exercise, asthma, 784
Bronchodilation, reflex, hindlimb muscular contraction and, 1521
Bronchomotor tone, histamine effects (sheep), 254
Bronchospasm
  airflow-induced, exercise-induced asthma, model, 1986
  antigen exposure effects and (sheep), 1866

C

Caffeine, enhanced metabolic response to, exercise training and, 832
Calcium
  chelators, airway responsiveness and, 92
  secretion, tracheal mucosa, 1191
  uptake
    fast and slow overloaded muscles, 639

mitochondria, skeletal muscle, 137
Calcium ions, dependent action potentials, hypoxic induction of, small pulmonary arteries, 1389
cAMP: *see* Adenosine monophosphate, cyclic
Capacity
diffusing, lung and thorax, high altitude effects, 1773
functional residual, determination by nitrogen washout, infant (monkey), 205
lung
determination by nitrogen washout, infant (monkey), 205
hyaline membrane disease, infant (monkey), 1783
Capillaries
endurance training, aerobic capacity and structure, skeletal muscle, 320
filtration coefficient, pulmonary, promethazine and DPPD pretreatment, 39
Capillarity, dynamic exercise training effects (foxhound), 190
Capsaicin, graded stimulation of pulmonary C-fibers, diaphragmatic responses to, 1487
Carbohydrates, metabolism, during and after exercise, 1627
Carbon dioxide
constant pulmonary fractional concentration of, breathing frequency and (chicken), 991
end-tidal tension, breathing patterns after muscle fatigue, 1152
exercise interaction, respiratory control, 792
partial pressure, sensation of respiratory drive and, 1747
pressure, breathing and, hilar nerve denervation effects (pony), 807
production
sleep, 384
testosterone effects, males, 1452
response, chemoreflex gains, 170
sarcolemmal carbonic anhydrase, skeletal muscle, 548
tension, pH meausrements and, blood, 1660
upper airway, breathing and, awake state (pony), 1222
Carbonic anhydrase, extracellular, sarcolemma and, skeletal muscle, 548
Cardiac output
anti-G suit inflation, 1-G environment, 1145
71 atmosphere absolute, 1369
endotoxic shock and, 1802
exercise, ventricular filling and, 1886
high-speed locomotion and, 1322
increased, shunt, pulmonary edema and perfusion and, 1313
noninvasive Doppler determination of, submaximal and peak exercise, 722
Cardiotoxicity, doxorubicin, exercise effects on antioxidant enzymes, 1298
Cardiovascular pulmonary interaction, recurrent apnea and, 536
Cardiovascular system, exercise and, muscle, 1322
Carotid body
chemoreception, haloperidol-induced suppression of, 814
denervation
breathing, awake state (pony), 1222
postnatal maturation of respiration and (lamb), 869
upper airway carbon dioxide effects
interspike dependency, chemoreceptors, 1566
peripheral chemoreceptor denervation, breathing movements and, fetus (sheep), 575
Catalase, mitogenic effects of, hyperoxia tolerance, lung, 315
Catecholamines
adrenal, β-sympathetic activity, awake state, 979
conjugation, hypoxia effects, 12
exercise-training, metabolic response to caffeine and, 832
lactic acid output and, progressive working contractions, muscle, 1809
plasma, age-related augmentation, exercise and, males, 1033
turnover, exercise effects, trained and untrained males, 1061
Central nervous system
adaptation, vagal input, 1072
neural depression, diaphragm electromyogram, neonatal (monkey), 1040
Cerebral medulla, rhythmic respiratory activity in pons, independent of, 684
Cerebral ventricles, febrile responses, endogenous pyrogen, 1254
Chemoreflex: *see* Reflexes
Chemosensitivity, stretch receptors, nicotine (crayfish), 1597
Chest wall
configuration
diaphragmatic length and, 1961
esophageal pressure and, posture effects, 401
distortion, mechanical aspects of, 295
mechanics
body orientation effects, 468
respiratory pattern effects, 1834
restriction, transmission of airway pressure to pleural space, 1171
Children
multibreath nitrogen washout, lung function, 274
oxygen uptake and heart rate, onset of exercise, 211
Choke point
flow-limiting segments
aerosol deposition and, 509
residual volume, 502
Choline, deficiency, liver and lung response to, 738
Cigarette smoking
chronic, pulmonary vasomotion and, 1815
deposition of particles, lung, 1828
nicotine-induced effects, respiration, 64
nicotine, ventilatory response, awake state, 229
permeability and, alveolar epithelium (hamster), 96
Circulation: *see also* Blood flow; Microcirculation
bimodal respiration (lungfish), 285
bronchial
bronchovascular resistance and (sheep), 305
lung lymph flow and (sheep), 1249
coronary collateral, exercise, 392
pulmonary
altered hemodynamics (sheep), 1796
chronic cigarette smoking effects, 1815
edema, 242
extra-alveolar vessel fluid filtration, 1555
Clearance
alveolar, transfer of prostaglandin E_2, lung (guinea pig), 691
protein and liquid, lung, awake state (sheep), 928
Cognitive function, raised body temperature effects, 1823
Compliance
chest wall, age and posture effects, 1842
dynamic, distortion effects on lung mechanics, newborn (piglet), 434
effective, chest wall distortion, 295
lung, antigen exposure and (sheep), 1866
Computed tomography: *see* Tomography
Converting enzyme, activity, inhibition by hypoxia, retraction of article, 1333
Coronary vascular reserve, exercise, cardiac hypertrophy effects, 1861
Corticosterone, heat acclimation and, 408
Cough
airway mechanisms, infantile regurgitation and, 716
flow-limiting segments
aerosol deposition and, 509, 515
residual volume, 502
Cranial nerve, responses, hypoxia and hypercapnia, 1201
Creatine kinase
adaptations, stressed skeletal muscle, marathon runners, 149
serum, delayed onset muscle soreness, running, 710
Creatine phosphate, muscle metabolism, maximal exercise, 132
Cycle ergometer: *see* Exercise
Cycling: *see* Exercise
Cyclooxygenase
airway hyperresponsiveness and, 1941
arachidonate edema and, lung, 47
endogenous products, vascular and airway effects, during lung inflation, 884
inhibition, lobar atelectasis, 72
Cyclooxygenase inhibitor, cardiopulmonary responses, endotoxin (pony), 1464
Cystic fibrosis
multibreath nitrogen washout, children, 1137
research, meeting report, 1999

D

Dansylsulfonamide, sarcolemmal carbonic anhydrase, skeletal muscle, 548
Dead space
alveolar ventilation, cardiopulmonary responses to endotoxin and (pony), 1464
anatomical, asthma, 1590
Bohr, ventilation maldistribution, 838
respiratory, awake state (pony), 1214
Decompression, saturation dives, multiple inert gases, 1503
Dehydration
exercise, thermoregulatory and blood responses, 1394
plasma volume changes, middle-aged marathon runners, 559

Deltoid muscle, fiber types, trained and untrained athletes, 1716
Deoxyribonucleic acid, synthesis, hyperoxia effects, aortic endothelial cells (pig), 1110
Detraining: *see* Exercise
Development: *see also* Maturation
  oxygen uptake and heart rate, onset of exercise, children, 211
Dextrans, uncharged, passage from blood to lung lymph, awake state (sheep), 580
Diabetes
  glucagon and exercise in, 1272
  poorly controlled, β-adrenergic mechanisms during exercise in, 1282
Diaphragm
  blood flow: *see* Blood flow
  body orientation effects, regional lung expansion, 468
  contractile properties, 528
  elevated electromyogram, hypoxic ventilatory depression, neonatal (monkey), 1040
  fatigue, inspiratory resistive loading and, spontaneous breathing, 1527
  hypercapnia effects, respiratory muscle activity, 1560
  length, lung volume and thoracoabdominal configuration in, 1961
  load compensation, chronic airway obstruction and, 1947
  metabolic acidosis effects, 1376
  response
    airway occlusion, infant, 847
    capsaicin graded stimulation, pulmonary C-fibers, 1487
  ventilatory loading, respiratory response to, 1752
Diethylenetriaminepantaacetic acid, ^{99m}-labeled, clearance, lung volume effects, 1242
Diet: *see* Feeding
Diffusion coefficient, gas, bronchial airway, model, 1343
Dimethylthiourea, consumption, lung injury and, 1995
Dinitrophenol, calcium transport and, tracheal mucosa, 1191
2,4-Dinitrophenol, circulatory response to, normoxia and hypoxia, limb, 698
N,N'-Diphenyl-*p*-phenylenediamine pretreatment, oleic acid-induced injury, lung, 39
2,3-Diphosphoglycerate, depletion, erythrocyte, voluntary hyperventilation, 1196
Diving: *see also* Immersion
  saturation, decompression following, 1503
  trigeminal reflex, alcohol effects on apnea (lamb), 420
DNA: *see* Deoxyribonucleic acid
Dopamine
  carotid chemoreception, haloperidol-induced suppression of, 814
  conjugation, hypoxia and, 12
Doxorubicin, cardiotoxicity of, exercise effects on antioxidant enzymes, 1298
DPPD: *see N,N'*-Diphenyl-*p*-phenylenediamine
Drug delivery, blood sampling and, implantable device, 1665
Ductus arteriosus, bimodal respiration, circulation in (lungfish), 285
Dynamic end-tidal forcing, chemoreflex gains comparison, 170

E

Edema
  pulmonary
    airway mechanics and, 1578
    arachidonate, polymorphonuclear leukocytes, 47
    bradykinin degradation and (sheep), 1185
    bronchial venous pressure, lung lymph flow and (sheep), 1249
    charged dextran passage from blood to lung lymph (sheep), 580
    charged macromolecules, 1128
    dimethylthiourea consumption and, 1995
    endogenous plasma proteins in, 1971
    extra-alveolar vessel fluid filtration, 1555
    increased cardiac output increases shunt, 1313
    long-term clearance (sheep), 928
    measurement, mean transit time approach, 673
    neurogenic, model, 1019
    noninvasive measurement of protein leak, 564
    permeability, promethazine or DPPD pretreatment, 39
    postmortem lung water measurement (sheep), 592
    tissue volume measurement, 1548
    transmission of airway pressure to pleural space, 1171
    vascular resistance in, 242
Edetate disodium, calcium chelators, airway responsiveness and, 92
Efferents, respiratory, activity, carbon dioxide partial pressure effects, 1747
Elastance, respiratory system, interrupter technique measurement, 647
Elastase, permeability and, alveolar epithelium (hamster), 96
Elasticity, lung, submerged lobes, 521
Electrical stimulation, chronic, skeletal muscle, 1434
Electrolytes, blood, β-adrenoceptor blockade effects, exercise in, 336
Electromyography
  airway occlusion, respiratory muscle response, infant, 847
  diaphragm, hypoxic ventilatory depression, neonatal (monkey), 1040
  force relations in, fatigue, 821
  inspiratory muscle fatigue, breathing patterns and, 1152
  respiratory muscles, reflex compensation, voluntary inspiration in immersion, 611
  treadmill vs. floor walking, 87
Electroneurograms, hypoglossal and phrenic, almitrine effects, 105
Emboli, venous air, transpulmonary passage, 543
Embolism, pulmonary, blood flow regulation after pulmonary arterial occlusion, 180
Emphysema
  mechanism of hypoxemia in, 1698
  vascular and interstitial mechanics in, 1704
Endothelial cells, aortic, DNA synthesis, hyperoxia effects (pig), 1110
Endotoxin
  cardiopulmonary responses to, flunixin meglumine effects (pony), 1464
  mitogenic effect, tolerance to hyperoxia, lung, 315
Endotoxin precursor, pathophysiology of, pulmonary (sheep), 1726
Endotracheal tube
  flow resistance, measurement of respiratory mechanics, anesthesia and, 647
  pressure-flow relations of, high-frequency ventilation and, 3
Endurance training: *see* Exercise
Energy
  mechanical, muscle stretch and, 78
  metabolism, exercise patterns, muscle, 101
  mobilization, carbohydrate metabolism and exercise, 1627
Enzymes: *see also* specific enzyme
  activities, dynamic exercise training (foxhound), 190
Epinephrine
  β-adrenergic effects, exercise, poorly controlled diabetes, 1282
  age-related augmentation, dynamic exercise and, males, 1033
  bronchovascular resistance, bronchial arterial blood flow and (sheep), 305
  calcium transport and, tracheal mucosa, 1191
  conjugation, hypoxia and, 12
  glucose production and, running, 1640
  lactic acid output and, muscle, 1809
  turnover, exercise effects, trained and untrained males, 1061
Epithelial cells, alveolar, sodium-amino acid cotransport, 1616
Erythrocytes
  adenosine triphosphate depletion, voluntary hyperventilation and, 1196
  transit, regional differences, lung, 1266
  volume and density changes, temperature effects, 1686
Erythropoietin, serum, high altitude effects, plasma renin and, 360
Esophagus, pressure: *see* Pressure
Euhydration, exercise, thermoregulatory and blood responses, 1394
Evans blue dye, unilateral instillation, lung, 266
Exercise
  β-adrenergic mechanisms during, poorly controlled diabetes, 1282
  antioxidant enzymes and, cardiotoxicity of doxorubicin, 1298
  asthma, model, 1986
  blood flow, muscle, 1322
  blood viscosity responses, endurance trained and sedentary females, 348
  carbohydrate metabolism, radioglucose studies, 1627
  cardiac performance, coronary collateral circulation and, 392
  cardiac pump performance in, ventricular filling and, 1886
  continuous, ozone inhalation and, sex differences, 1601
  cycle ergometer, breathing pattern and, 898
  cycling, maximal isokinetic, muscle metabolism in, 132
  detraining effects, response to submaximal exercise and, 853
  different intensities, breathing pattern after, 898

dynamic, plasma catecholamines, age effects, males, 1033
dynamic knee extension, model, 1647
electrical stimulation, nongrafted and grafted skeletal muscle, 1434
endurance- and strength-training modes, incompatibility of, 1446
endurance athletes, renin, angiotensin II, and 6-ketoprostaglandin plasma levels, 947
endurance training
aerobic capacity and structure, skeletal muscle, 320
hypertrophied skeletal muscle response, 127
epinephrine turnover and, trained and untrained males, 1061
glucagon in, diabetes, 1272
glycogen, insulin sensitivity and, muscle, 154
graded hypohydration levels, thermoregulatory and blood responses, 1394
heart rate responses to, menstrual cycle effects, 1911
heat and, muscle metabolism during, 1350
heat stress, plasma hormonal responses, 1855
hemodynamic and metabolic effects, pulmonary hypertension, 1027
hindlimb muscular contraction and, pulmonary resistance, 1521
hydrogen and potassium flux in, β-adrenoceptor blockade effects, 336
hyperpnea: *see* Hyperpnea
hyperthermia: *see* Hyperthermia
incremental, lactate threshold during, 1936
inhaled particles, lung burden of, 1046
inspiratory neural drive during, mechanical impedance, 365
leg, rest and, thermal responses in water, 248
lengthening contraction, injury following, skeletal muscle fiber, 119
marathon running, plasma volume changes in middle age, 559
muscle contraction, pressor reflex evoked by, 459
muscle fatigue, McArdle's disease, 1991
normoxemic and hypoxemic, renin and aldosterone and, 142
normoxic and hypoxic, hemoglobin P_{50} in oxygen transport, 749
onset, oxygen uptake and heart rate, 211
oral contraception and, renin-angiotensin system in, health females, 1690
physical training, epinephrine turnover and, males, 1061
progressive, elastic loading effects, ventilatory pattern, 34
recovery and, lactate-to-pyruvate ratio during, 935
reflex, bradykinin-induced chemoreflexes, skeletal muscle, 56
respiratory response slopes, estimation of, 1623
running
creatine kinase adaptation, stressed skeletal muscle, 149
delayed onset muscle soreness, 710
sympathetic control of glucose production, 1640
short-duration constant, permeability to albumin and, aorta (cockerel), 985
skeletal muscle metabolism, heat acclimation effects, 1929
submaximal
cardiac response to, 890
detraining effects, 853
plasma interferon and, 426
tetraplegics and paraplegics, 237
submaximal and peak, noninvasive Doppler determination of cardiac output, 722
testing, respiratory gas analysis, 1001
training
enhanced metabolic response to caffeine and, 832
muscle fiber types in athletes, 1716
neonatal heart and, 1440
oxygen consumption, hemodynamic responses, and skeletal muscle in(foxhound), 183, 190
renal hypertension and, 1410
ventilation threshold and, elderly males, 1472
transient patterns, muscle, ^{31}P-NMR, 101
treadmill
breathing pattern and, 898
vs. floor walking, kinematics, 87
voluntary, longevity and, 826
wheelchair ergometry, tetraplegics and paraplegics, 237
wheel running, longevity and, 826
Expiration: *see* Respiration
Expiratory flow: *see* Flow

F

Fatigue: *see also* Exercise
diaphragm, inspiratory resistive loading and, 1527
muscle, electromyogram and force relations, 821
respiratory muscle, breathing pattern and, 1834
Fatty acids, free, caffeine and exercise training, 832
Febrile response: *see* Fever
Feeding
diet
glycogen, insulin sensitivity and, muscle, 154
preexercise meal, substrate usage and, 429
food restriction, voluntary exercise effects and, longevity, 826
preexercise meals, prolonged exercise and, substrate usage, 429
Fetus: *see also* Placenta
breathing movements, peripheral chemoreceptor denervation and (sheep), 575
heat transfer pathways (sheep), 634
Fever
endogenous pyrogen, 1254
differences in, 342
species differences (rat, rabbit), 1721
Fibrinogen, exercise and, endurance-trained and sedentary females, 348
Fibronectin, plasma, heat stress mortality and, 706
Fibrosis
pulmonary, elastic loading effects, progressive exercise and, 34
unilateral, lung, 266
Filtration, pulmonary vascular, transpulmonary passage of venous air emboli, 543
Flow
air, obstruction, choke and flutter, 1304
expiratory
interdependence of, 1924
maximum, increased gravitational stress and, 28
peak and maximal, airway dynamics in, 1733
oscillatory
endotracheal tubes, high-frequency ventilation, 3
larynx effects, central airway, 160
Flow-volume relations
expiratory
airway dynamics in, 1733
asthma, 1590
gravitational stress effects, 28
Fluid
alveolar, endogenous plasma proteins in, 1971
biological, volume and density changes, temperature and, 1686
extra-alveolar vessel, filtration, lung lobes, 1555
lung, balance, postmortem measurement (sheep), 592
Flunixin meglumine, cardiopulmonary responses, endotoxin (pony), 1464
Force-velocity relations, muscle, exercise modes and, 1446
Functional-residual capacity: *see* Capacity

G

Ganglion, parasympathetic, respiratory effects of nicotine, 64
Gas
arterial blood, obstructive sleep apnea, 1364
blood
arterial, hilar nerve denervation effects (pony), 807
measurement, 1660
exchange
chronic bronchitis and emphysema, 1698
estimation of respiratory response slopes, 1623
high-frequency ventilation effects (lamb), 1104
measurement during nitrogen washout, 1008
inert, elimination, estimation of ventilation-perfusion inequality, 376
longitudinal dispersion, bronchial airways, model, 1343
multiple inert, decompression following saturation dives, 1503
respiratory, analysis, 1001
transport, high-frequency ventilation, 1539
volume, thoracic, plethysmographic method, 653
Genioglossus muscle, response, airway occlusion, infant, 847
Gerontology: *see* Aging
Glucagon, exercise and, diabetes, 1272
Glucose
blood, exercise and heat effects, 1350
infusion, muscle fatigue in McArdle's disease, 1991
kinetics, exercise, diabetes and, 1272
production, carbohydrate metabolism and exercise, 1627
substrate usage and, preexercise meal and exercise effects, 429

Glucose (*continued*)
turnover
hepatic nerves and adrenal medulla in running, 1640
Glucose tolerance test, insulin sensitivity, glycogen and, exercise-reduced muscle, 154
Glutathione peroxidase
exercise and, cardiotoxicity of doxorubicin, 1298
mitogenic effects of, hyperoxia tolerance, lung, 315
paraquat-induced lipid peroxidation and, lung, 619
Glycogen
depletion, exercise, skeletal muscle, 127
liver and muscle, exercise and, 1627
muscle
exercise and heat effects, 1350
exercise hyperthermia and, 766
insulin sensitivity and, 154
metabolism during exercise, heat acclimation effects, 1929
Glycogenolysis
carbohydrate metabolism, exercise effects, 1627
sympathetic control, running, 1640
Glycogen storage disease, muscle fatigue, McArdle's disease, 1991
Glycolysis, lactate-to-pyruvate ratio, exercise and recovery, 935
Glycolytic enzyme, muscle, detraining effects, 853
Granulocytes, lung myeloperoxidase, pulmonary leukostasis and, 1978
Gravity
body orientation effects, regional lung expansion, 468, 481
esophageal pressure, chest wall configuration and, 401
increased stress, maximum expiratory flow and, 28

H

Haloperidol, suppression, carotid chemoreception, 814
Halothane, anesthesia, cardiopulmonary responses to endotoxin and (pony), 1464
Headache, high altitude, internal carotid arterial blood velocity and, 909
Heart
function, swimming training effects, spontaneous hypertension and, 758
functional properties, training effects, neonate, 1440
hypertrophy: *see* Hypertrophy
ischemic disease, exercise training effects, 1410
performance, exercise and, 392
submaximal exercise effects, sudden cardiac death and, 890
volume: *see* Volume
Heart-lung interaction
body orientation effects, regional lung expansion, 468, 481
transmission of airway pressure, lung edema and chest wall restriction, 1171
Heart rate
changes
middle-aged marathon runners, 559
recurrent apnea, 536
exercise
graded hypohydration levels, 1394
menstrual cycle effects, 1911
oxygen uptake and, exercise, 211
plasma catecholamines, age-related catecholamines, exercise and, males, 1033
submaximal exercise, tetraplegics and paraplegics, 237
treadmill vs. floor walking, 87
Heart ventricles
fibrillation, submaximal exercise effects, sudden cardiac death and, 890
filling, cardiac pump performance in exercise and, 1886
function, training effects, neonate, 1440
Heat
acclimation
skeletal muscle metabolism during exercise and, 1929
stepwise or direct exposure, 408
clearance, cutaneous, exercise, menstrual cycle effects, 1911
flow, rest and exercise, water immersion, 248
muscle metabolism during exercise, 1350
transfer pathways, fetus and mother (sheep), 634
Heat stress
exercise
plasma hormonal responses, 1855
thermoregulatory and blood responses, 1394
plasma fibronectin and, 706
Helium
thoracic volume, anesthesia and plethysmography, 653
ventilation maldistribution, normal subjects, 838
Hematocrit
blood viscosity responses, exercise effects, women, 348
changes, middle-aged marathon runners, 559
pulmonary vascular resistance, edema, 242
regional lung water and, positron emission tomography, 860
Hematoma, experimentally induced, 658
Hemodilution, oxygen transport and, high-altitude polycythemia, 1495
Hemoglobin
changes, middle-aged marathon runners, 559
oxygen transport and, normoxic and hypoxic exercise, 749
Hepatic nerves, glucose turnover and, running, 1640
Hering-Breuer reflex: *see* Reflexes
Hexamethonium
chemosensitivity, stretch receptors (crayfish), 1597
respiratory effects of nicotine, 64
Hexokinase, skeletal muscle, adaptive response to endurance training, 127
Hilar nerve
denervation, breathing and arterial carbon dioxide pressure in, (pony), 807
hyperpnea and, exercise (horse), 798
Hindlimb, prolonged immobilization, contractile function and, skeletal muscle, 916
Histamine
aerosolized, tachyphylaxis to, anesthesia and, 1350
bronchovascular resistance, bronchial arterial blood flow and (sheep), 305
cigarette smoking and, lung, 1815
differential effects, bronchial artery blood flow and bronchomotor tone (sheep), 254
receptors: *see* Receptors
Histocytochemistry, muscle biopsy, sampling errors, 1228
Hormonal responses, plasma, graded hypohydration levels, exercise-heat stress and, 1855
Hormones
counterregulatory
exercise, poorly controlled diabetes, 1282
exercise and diabetes, 1272
Hyaline membrane disease, lung volume, deflation stability and (monkey), 1783
Hydrogen ions
flux, β-adrenoceptor blockade effects, exercise and, 336
^{31}P-NMR, exercise patterns, muscle, 101
Hydrogen peroxide, concentrations, dimethylthiourea consumption and, lung, 1995
Hydrostatics, chest wall compliance, aging and posture effects, 1842
Hypercapnia
carbon dioxide partial pressure, respiratory drive and, 1747
headache, internal carotid arterial blood velocity and, 909
hyperpnea control during, exercise, 792
hypoxia and, responses of respiratory neurons to, 1201
inspiratory and expiratory activity, muscle, 1560
medullary respiratory neurons, antidromic latencies in, 1208
respiratory response, low cervical spinal cord injury, 1752
ventilation, airway anesthesia effects, 1090
ventilatory responses to, 1955
testosterone effects, males, 1452
Hyperoxia
DNA synthesis and, aortic endothelial cells (pig), 1110
injury and recovery from, pulmonary physiological and surfactant changes, 1402
lung tolerance of, mitogenic effects of endotoxin, 315
pulmonary vascular paralysis, antioxidant pretreatment effects, 953
Hyperpnea
cardiodynamic, onset of exercise, children, 211
cigarette smoke effects, ventilatory response, awake state, 229
control of, mechanical impedance, exercise, 365
exercise
control during hypercapnia, 792
hilar nerve afferents in (horse), 798
Hyperreactivity, pulmonary and cardiovascular changes, citric acid aerosols and, 354
Hypertension
pulmonary
exercise effects, 1027
increased vasoreactivity and, indomethacin effects (sheep), 443
lipid X and (sheep), 1726
renal, exercise training effects, 1410
spontaneous, swimming training effects, cardiac function and, 758

Hyperthermia
  exercise, physical performance and, 766
  muscle metabolism and, during exercise, 1929
Hypertrophy
  cardiac
    coronary vascular reserve in exercise and, 1861
    swimming training effects, spontaneous hypertension, 758
  compensatory, fast- and slow-twitch ankle extensors, 639
  muscle
    testosterone and, female, 24
    trained and untrained athletes, 1716
Hyperventilation, voluntary, erythrocyte adenosine triphosphate depletion during, 1196
Hypervolemia, positive end-expiratory pressure effects (pig), 1178
Hypohydration
  graded levels
    plasma hormonal responses at, exercise-heat stress and, 1855
    thermoregulatory and blood responses, 1394
Hypophosphatemia, erythrocyte, voluntary hyperventilation, 1196
Hypotension, respiratory muscle and organ, endotoxic shock and, 1802
Hypothermia, respiration during, neural control, 1423
Hypoventilation, chronic bronchitis, emphysema and, 1698
Hypovolemia, positive end-expiratory pressure effects (pig), 1178
Hypoxemia
  exercise, renin and aldosterone and, 142
  renin-angiotensin-aldosterone system during, 1026
  transient nocturnal, hypoxic chronic bronchitis and emphysema, 1698
Hypoxia
  bradykinin degradation, lung, epithelial permeability and (sheep), 1185
  calcium ion-dependent action potentials, small pulmonary arteries, 1389
  catecholamine conjugation, 12
  chronic, lung and thorax functional capacities, 1773
  cigarette smoking and, lung, 1815
  circulatory response to 2,4-dinitrophenol, limb, 698
  converting enzyme activity and, retraction of article, 1333
  headache, internal carotid arterial blood velocity and, 909
  hypercapnia and, responses of respiratory neurons to, 1201
  lung, vascular resistance and (pig), 1891
  medullary respiratory neurons, antidromic latencies in, 1208
  oxygen transport, hemoglobin P_{50} in, exercise, 749
  pulmonary artery activation and, 113
  pulmonary vascular permeability, bradykinin-induced increase, retraction of article, 1333
  respiration during, almitrine bismesylate effects, awake state, newborn, 18
  serum erythropoietin in, plasma renin and, 360
  tracheal constriction, deflation-induced reflex, 941
  ventilatory depression, elevated diaphragm electromyogram during, neonatal (monkey), 1040
  ventilatory responses to, 1955
    testosterone effects, males, 1452
Hysteresis, parenchymal, airway and, asthma, 1590

I

Immersion: *see also* Diving
  thermal responses, rest and leg exercise, 248
  voluntary inspiration in, reflex compensation, 611
Impedance
  mechanical, inspiratory neural drive during exercise, 365
  respiratory, upper airway shunt and, 1790
  tissue, respiratory input and, 492
Indicator-dilution studies
  erythrocyte transit, regional differences, lung, 1266
  sarcolemmal carbonic anhydrase, skeletal muscle, 548
Indomethacin
  chemoreflexes, skeletal muscle, 56
  hypoxia, pulmonary artery activation, 113
  pulmonary hypertension, increased vasoreactivity and (sheep), 443
  tachyphylaxis to inhaled histamine and, anesthesia, 1350
  transport, tracheal epithelium, 1585
  vascular and airway effects, lung inflation, 884
Infant: *see also* Neonate; Newborn
  airway occlusion, respiratory muscle response, 847
  lung volume, serial determination by nitrogen washout (monkey), 205
  regurgitation, airway mechanisms in, 716
Inspiration: *see* Respiration
Instrumentation, respiration, breathing patterns and, 1515
Insulin
  exercise and, diabetes, 1272
  sensitivity, glycogen and, muscle, 154
  substrate usage and, preexercise meal and exercise effects, 429
Interferon, plasma, exercise effects, 426
Intracerebroventricular route, intravenous route vs., endogenous pyrogen fevers, 342
Iodoantipyrine, alveolar transfer, isolated perfused lung (guinea pig), 691
Isoproterenol, phospholipid retention and, pulmonary, 743
Isotopes, exchange, total body water prediction (partridge), 1383

K

6-Ketoprostaglandin, plasma level, endurance athletes, 947
Kidney, hypertension, exercise training effects, 1410
Krypton-81m, regional ventilation, obesity and, 774

L

Lactate
  arterial concentrations, catecholamine effects, 1809
  blood, exercise and heat effects, 1350
  dynamic exercise training and (foxhound), 183
  exercise, recovery and, 935
  glycogen, insulin sensitivity and, muscle, 154
  muscle metabolism
    during exercise, heat acclimation effects, 1929
    maximal exercise, 132
  threshold
    detection during exercise, 1936
    detraining effects, 853
Lactate dehydrogenase, plasma-lymph exchange, charged macromolecules, lung, 1128
Lactate-to-pyruvate ratio, exercise, recovery and, 935
Lactic acid
  β-adrenoceptor blockade effects, exercise in, 336
  inspiratory resistive loading, diaphragm fatigue, 1527
  output, muscle contractions, catecholamine effects, 1809
Larynx, oscillatory flow and, central airway, model, 160
Length-tension relations, intercostal muscles, 528
Leukocytes, polymorphonuclear, arachidonate edema, 47
Leukostasis, pulmonary, myeloperoxidase and, 1978
Leukotriene B_4, airway hyperresponsiveness and, 1941
Leukotriene D_4, mucociliary and respiratory function, allergy (sheep), 1416
Leukotrienes, reflex-mediated bronchoconstriction and, pulmonary and cardiovascular changes, 354
Lidocaine, airway, hypercapnic ventilation and, 1090
Lipids
  lung, choline deficiency and, 738
  metabolism, endurance training and, skeletal muscle, 320
  peroxidation, paraquat-induced, selenium deficiency, lung, 619
Lipid X, pathophysiology of, pulmonary (sheep), 1726
Lipopolysaccharide, mitogenic effects of, lung tolerance to hyperoxia, 315
Liposomes, pulmonary retention, β-adrenergic mediators, 743
Liquid, long-term clearance, lung, awake state (sheep), 928
Liver, differential response, choline deficiency, 738
Loading
  elastic
    inspiratory, diaphragmatic blood flow, 1164
    ventilatory pattern, during progressive exercise, 34
  inspiratory resistive, diaphragm fatigue and, 1527
  inertial, muscle output following stretch, 78
  resistive, fatiguing, ventilatory response to, awake state (sheep), 969
  respiratory compensation
    chronic airway obstruction and, 1947
    exercise, 365
  ventilatory, respiratory responses to, cervical spinal cord injury, 1752

Locomotion: *see also* Exercise
high-speed, muscle blood flow during, 1322
normal, treadmill vs. floor walking, 87
Lung
air space dimensions, volume-dependent changes, aerosol effects, 875
alveolar epithelium, albumin transport across (bullfrog), 1290
burden of inhaled particles, exercise effects, 1046
capacity: *see* Capacity
charged macromolecules, plasma-lymph exchange and interstitial distribution volumes, 1128
cigarette smoking, regional deposition of particles in, 1828
circulatory adaptation, bimodal respiration (lungfish), 285
collateral gas flow, transpulmonary and driving pressure effects, 1757
deflation-induced reflex tracheal constriction, hypoxia and oxygen effects, 941
differential response, choline deficiency, 738
edema: *see* Edema, pulmonary
elasticity: *see* Elasticity
erythrocyte transit, regional differences, 1266
expansion, regional, body orientation effects, 468, 481
function
impairment, ozone inhalation and, sex differences, 1601
multibreath nitrogen washout, young children, 274
regional, increased gravitational stress effects, 28
tests, young and elderly subjects, 1607
growth, high altitude, 1773
hypoxic
bradykinin degradation in (sheep), 1185
vascular resistance and (pig), 1891
hypoxic vasoconstriction, cellular mechanism of, 1389
inflammation, indomethacin and (sheep), 443
inflation
endogenous cyclooxygenase product effects, 884
positive end-expiratory pressure and pulmonary C-fibers, 1085
tonic vagal input effects, newborn, 223
injury
dimethylthiourea consumption and, 1995
noninvasive measurement of protein leak, 564
lavage fluid, turnover of phospholipids, 1055
lipids: *see* Lipids
lymph flow: *see* Lymph flow
mechanics
distortion effects, newborn (piglet), 434
obstructive sleep apnea, 1364
ontogeny of, newborn, 1477
metabolism, sodium-amino acid, alveolar epithelial cells, 1616
multibreath nitrogen washout, children, 1137
myeloperoxidase, pulmonary leukostasis and, 1978
neutrophil kinetics (sheep), 1796
oleic acid-induced injury, promethazine or DPPD pretreatment, 39
oscillation, pleural surface motion, 623
ozone effects, parasympathetic nervous system role in, 1879
paraquat-induced lipid peroxidation, selenium deficiency, 619
periphery
dry air-induced constriction, exercise and, 1986
β-sympathetic activity, awake state, 979
physiological changes, injury and recovery from hyperoxia, 1402
premature, high-frequency ventilation effects (lamb), 1571
prostaglandin E_2, alveolar transfer of (guinea pig), 691
resistance: *see* Resistance
retention of instilled phospholipids, β-adrenergic mediators of, 743
scanning, cough, flow-limiting segments, and chronic obstructive lung disease, 515
surfactant: *see* Surfactant
tolerance to hyperoxia, mitogenic effects of endotoxin, 315
unilateral instillation of agents into, 266
vasomotion, chronic cigarette smoking effects, 1815
volume: *see* Volume
wall motion, expiratory flow limitation, 1304
water: *see* Water
Lung disease, chronic obstructive, cough, flow-limiting segments and, 515
Lung lobes
extra-alveolar vessel fluid filtration, 1555
submerged, distortion, 521
Lung parenchyma, antigen exposure effects (sheep), 1874
Lymph flow, lung
increased bronchial venous pressure effects (sheep), 1249
uncharged dextran passage from blood to, awake state (sheep), 580

M

Malondialdehyde, paraquat-induced lipid peroxidation, lung, 619
Mannitol
alveolar transfer, isolated perfused lung (guinea pig), 691
transport, tracheal epithelium, 1585
Maturation: *see also* Development
respiration, carotid body denervation and (lamb), 869
McArdle's disease, muscle fatigue, glucose infusion effects, 1991
Meals: *see* Feeding
Mecamylamine, respiratory effects of nicotine, 64
Menstrual cycle, thermoregulatory responses and, 1902, 1911
Metabolic acidosis: *see* Acidosis
Metabolic rate
breathing and, sleep, 384
environmental temperature effects, 413
heat acclimation and, 408
opioids, ventilation and oxygen consumption, 959
rest and exercise, water immersion, 248
Methacholine
calcium chelators, airway responsiveness and, 92
cigarette smoking and, lung, 1815
tachyphylaxis to inhaled histamine and, anesthesia, 1350
α-Methylaminoisobutyric acid, metabolism, alveolar epithelial cells, 1616
Methylprednisolone, oleic acid-induced injury, lung, 39
Microbubbles, transpulmonary passage, 543
Microcirculation: *see also* Blood flow; Circulation
measurement, small pulmonary vessels, 1013
muscle, high-speed locomotion effects, 1322
pulmonary, passage of uncharged dextrans from blood to lung lymph (sheep), 580
Microscopy
electron, endurance training, skeletal muscle, 320
light, pleural space thickness, 603
Microspheres
blood flow, diaphragm, 1164
radiolabeled, organ blood flow at 71 ATA, 1369
Mitochondria
endurance training, aerobic capacity and structure, skeletal muscle, 320
muscle, calcium uptake, 137
Models
airway, excessive mucus secretion, aerosol deposition in, 1766
asthma, exercise-induced, 1986
central airway, larynx effects, oscillatory flow, 160
dynamic knee extension, exercise, 1647
gas dispersion, bronchial airway, 1343
mathematical, passage of uncharged dextrans from blood to lung lymph (sheep), 580
neurogenic pulmonary edema, 1019
transcutaneous oxygen pressure, 1117
two-component, lactate-to-pyruvate ratio, exercise and recovery, 935
vascular resistance, hypoxic lungs (pig), 1891
wall motion, expiratory flow limitation, 1304
Monge's disease, hemodilution effects, oxygen transport, 1495
Motoneurons, electromyogram and force, fatigue, 821
Mountain sickness, chronic, hemodilution effects on oxygen transport, 1495
Mouthpiece, instrumentation, breathing patterns and, 1515
Mucus, excessive secretion, airway, aerosol deposition in, model, 1766
Multiple-breath washout, ventilation maldistribution, normal subjects, 838
Muscle
abdominal
hypercapnia effects during expiration, 1560
load compensation, chronic airway obstruction, 1947
activity, treadmill vs. floor walking, 87
atrophy: *see* Atrophy
blood flow: *see* Blood flow
contraction
force in fatigue and, 821
pressor reflexes and, neuraxis levels in, 459
cross section, biopsy, sampling errors, 1228

exercise-reduced, glycogen, insulin sensitivity and, 154
fatigue, McArdle's disease, 1991
glycogen, preexercise meal and exercise effects, 429
hindlimb, contraction , total pulmonary resistance and, 1521
hypertrophy: *see* Hypertrophy
inspiratory, fatigue, breathing patterns and, 1152
intercostal
contractile properties of, 528
reflex compensation, voluntary inspiration, immersion, 611
knee, dynamic extension, exercise, model, 1647
lactic acid output, catecholamine effects, 1809
metabolism
exercise, heat and, 1350
maximal exercise, 132
temperature effects, exercise hyperthermia, 766
mitochondrial enzymes, detraining effects, 853
nasal, length, respiratory changes in, 453
overloaded, fast and slow, properties of, 639
respiratory
blood flow, endotoxic shock and, 1802
decay of inspiratory muscle pressure during expiration, 647
diaphragmatic blood flow, 1164
diaphragm fatigue, inspiratory resistive loading and, 1527
endurance, breathing pattern effects, 1834
function and airway resistance, snoring during REM sleep, 328
hypercapnia effects during expiration, 1560
paralysis, comparison of resistance, 262
phrenic nerve stimulation, 269
response to airway occlusion, infant, 847
soreness, delayed onset, downhill running and, 710
stretch, mechanical output following, 78
transient patterns with exercise, ^{31}P-NMR, 101
Muscle, skeletal
chemoreflexes, bradykinin-induced, 56
chronic shortening, biochemical response to, 1159
contractile function, prolonged hindlimb immobilization and, 916
contraction
acidosis effects, diaphragm, 1376
injury to fiber, 119
exercise, hydrogen and potassium flux, β-adrenoceptor blockade effects, 336
exercise training effects (foxhound), 190
extracellular carbonic anhydrase, sarcolemma and, 548
grafted and nongrafted, chronic electrical stimulation, 1434
hypertrophied, response to endurance training, 127
lactic acid output, catecholamine effects, 1809
metabolism, during exercise, heat acclimation effects, 1929
mitochondria, calcium uptake in, 137
stressed, creatine kinase-MB isoenzyme adaptation, marathon runners, 149
structure and aerobic capacity, endurance training, 320
Muscle, smooth
airway
antigen exposure effects (sheep), 1874
deflation-induced reflex, oxygen and hypoxia effects, 941
leukotriene B_4 effects, 1941
respiratory effects of nicotine, 64
circulatory adaptation, bimodal respiration (lungfish), 285
tracheal
neural and humoral factors in, 198
stimulation, norepinephrine metabolism during, 1236
vascular, hypoxic vasoconstriction, cellular mechanism of, 1389
Muscle fiber
afferents, contraction, pulmonary resistance and, 1521
conversion, overloaded muscle, 127
damage, marathon running, 149
regeneration, electrical stimulation, 1434
skeletal, injury following contraction, 119
types
conversions, overloaded ankle extensors, 639
detraining effects, response to exercise and, 853
dynamic exercise training and (foxhound), 190
torque-velocity relations and, vastus lateralis, 309
trained and untrained athletes, 1716
Myeloperoxidase, pulmonary leukostasis and, 1978
Myocardium, function, exercise and, 392
Myoglobin, serum, delayed onset muscle soreness, running, 710
Myosin adenosine triphosphatase, fast and slow overloaded muscles, properties of, 639
Myosin isozymes, training effects, neonatal heart, 1440

N

Naloxone, breathing and, neonate, 1675
Nares breathing: *see* Respiration
Neonate: *see also* Infant; Newborn
breathing, opioids and, 1675
hypoxic ventilatory depression, elevated diaphragm electromyogram during (monkey), 1040
lung volume, hyaline membrane disease (monkey), 1783
respiration, chest wall distortion and, 295
respiratory control, pulmonary mechanics and, 1477
training effects, heart function, 1440
Neural control, heating, tail vasodilation, 1533
Neurons
medullary respiratory, antidromic latencies in, 1208
respiratory, responses to hypercapnia and hypoxia, 1201
Neutrophil, pulmonary, kinetics (sheep), 1796
Newborn: *see also* Infant; Neonate
breathing pattern, tonic vagal input effects, 223
carotid body denervated, postnatal maturation of respiration (lamb), 869
lung mechanics, distortion effects (piglet), 434
respiration, acute hypoxia, almitrine bismesylate effects, awake state, 18
vagal stimulation, expiratory effects of, 218
Nicotine
cigarette smoke, ventilatory response and, awake state, 229
respiratory effects, cigarette smoke, 64
stretch receptors, chemosensitivity of (crayfish), 1597
Nitrogen
volume: *see* Volume
washout
determination of lung volume, infant (monkey), 205
high-frequency ventilation, 1539
meaurement of nitrogen volume, 1008
multibreath, young children, 274, 1137
Norepinephrine
β-adrenergic effects, exercise, poorly controlled diabetes, 1282
age-related augmentation, dynamic exercise and, males, 1033
cigarette smoking and, lung, 1815
conjugation, hypoxia and, 12
glucose production and, running, 1640
lactic acid output and, muscle, 1809
metabolism, nerve stimulation, trachea, 1236
plasma activity, head-down tilt effects, 1068
turnover, exercise effects, trained and untrained males, 1061
Normocapnia, gas transport, high-frequency ventilation, 1539
Noseclips, instrumentation, breathing patterns and, 1515
Nuclear magnetic resonance, ^{31}P-, muscle, exercise, 101

O

Obesity
oxygenation, obstructive sleep apnea, 1364
regional ventilation and, lateral decubitus position, 774
Oleic acid
lung injury, promethazine or DPPD pretreatment effects, 39
pulmonary edema, perfusion and shunt, 1313
tissue volume measurement, edematous lung, 1548
Opioids, breathing and, 1675
Oral contraception, exercise and, renin-angiotensin system, healthy females, 1690
Oscillation
forced technique
comparison of two devices, 1654
respiratory input and transfer impedance, 492
high-frequency, premature lung (lamb), 1571
Oscillatory flow: *see* Flow
Ouabain, calcium transport and, tracheal mucosa, 1191
Oxygen
consumption
dynamic exercise training and (foxhound), 183
epidermal, probe temperature and, model, 1117
maximal, renal hypertension and, 1410

Oxygen (*continued*)
peak, dynamic exercise, aging and, males, 1033
sleep, 384
testosterone effects, males, 1452
ventilation and, opioid receptor agonist regulation of, 959
metabolites, dimethylthiourea consumption and, lung injury, 1995
pressure, transcutaneous, probe temperature and, model, 1117
pulse, submaximal exercise, tetraplegics and paraplegics, 237
toxicity
hyperoxia-induced pulmonary vascular paralysis, 953
injury and recovery from hyperoxia, 1402
mitogenic effects of endotoxin, lung, 315
tracheal constriction, deflation-induced reflex, 941
transport
hemodilution effects, high-altitude polycythemia, 1495
hemoglobin P_{50} in, exercise, 749
uptake
2,4-dinitrophenol, limb, 698
heart rate and, exercise, 211
maximal, exercise training effects, elderly males, 1472
maximum, training effects, neonatal heart, 1440
muscle, catecholamine effects, 1809
muscle, exercise, model, 1647
Oxygenation, nocturnal arterial, obstructive sleep apnea and, 1364
Ozone
inhalation effects, continuous exercise, sex differences, 1601
lung response to, parasympathetic nervous system role in, 1879

P

Pancreas, elastase, alveolar epithelial permeability and (hamster), 96
Paralysis, pulmonary vascular, hyperoxia-induced, antioxidant pretreatment effects, 953
Paraplegia
forearm blood flow, plasma renin activity and, 924
submaximal exercise responses, 237
Paraquat, lipid peroxidation, selenium deficiency and, lung, 619
Parasympathetic ganglia: *see* Ganglion
Parasympathetic nervous system, ozone, lung response to, 1879
Parenchymal waves, pleural surface motion, lung, photographic measurement of, 622
Parenchyma: *see* Lung parenchyma
Particles
inhaled, lung burden of, exercise effects, 1046
regional deposition, cigarette smoking and, lung, 1828
Peptides, endogenous opioid, ventilation and oxygen consumption regulation, 959
Permeability
alveolar epithelium
albumin transport across (bullfrog), 1290
elastase and cigarette smoke effects (hamster), 96
injury and recovery from hyperoxia, 1402
aortic, albumin, exercise effects (cockerel), 985
capillary
charged macromolecules, lung, 1128
pulmonary edema, 242
uncharged dextran passage (sheep), 580
edema, endogenous plasma proteins, 1971
epithelial, bradykinin degradation and, hypoxic lung (sheep), 1185
lipid X, lung (sheep), 1726
protein, premature lung (lamb), 1571
pulmonary vascular, neurogenic edema, 1019
respiratory epithelial, aerosolized solute clearance and, 1242
pH
erythrocyte, voluntary hyperventilation, 1196
intracellular, ^{31}P-NMR, exercise patterns, muscle, 101
measurements, carbon dioxide tension and, blood, 1660
medullary extracellular pH, theophylline and adenosine effects, 1428
muscle, exercise and heat effects, 1350
Pharynx, airway mechanisms, infantile regurgitation and, 716
Phosphate
high-energy, muscle, exercise hyperthermia and, 766
inorganic, transient patterns with exercise, muscle, 101
organic, erythrocyte, voluntary hyperventilation and, 1196
Phosphatidylcholine
deficiency, liver and lung response, 738
phospholipid retention and, pulmonary, 743
Phosphocreatine, nuclear magnetic resonance, transient patterns with exercise, muscle, 101
Phospholipids
alveolar, turnover, 1055
instilled, pulmonary retention, β-adrenergic mediators, 743
Phosphorylase, skeletal muscle, adaptive response to endurance training, 127
Phrenic nerve
activity
central adaptation to vagal input, 1072
respiration during hypothermia, 1423
respiratory effects of adenosine and theophylline, 1428
motor output, respiratory effects of nicotine, 64
stimulation, transvenous vs. direct, 269
thoracic gas volume, anesthesia, plethysmography, 653
Placenta: *see also* Fetus
heat transfer pathways, fetus and mother (sheep), 634
Plasma
angiotensin II: *see* Angiotensin II
fibronectin: *see* Fibronectin
interferon: *see* Interferon
6-ketoprostaglandin: *see* 6-Ketoprostaglandin
renin: *see* Renin
viscosity, exercise effects, females, 348
volume and density changes, temperature effects, 1686
volume: *see* Volume
Plasma-lymph, exchange, charged macromolecules, lung, 1128
Plethysmography
head, respiratory impedance, upper airway shunt and, 1790
inductance, cigarette smoking, regional particle deposition in, lung, 1828
respiratory responses, hypoxia and hypercapnia, 1955
thoracic gas volume, anesthesia and, 653
Pleural space
motion, photographic measurement, lung oscillation, 623
thickness, light microscopy, 603
transmission of airway pressure to, lung edema and chest wall restriction, 1171
Pneumococcus, lung myeloperoxidase and, 1978
Pneumotachograph, frequency characteristics, forced oscillation technique and, 1654
Pneumotachometer, respiratory gas analysis, 1001
Pollution
continuous exercise and, sex differences, 1601
lung and, parasympathetic nervous system role in, 1879
Polycythemia
high-altitude, hemodilution effects, oxygen transport, 1495
pulmonary vascular resistance, edema, 242
serum erythropoietin in, plasma renin and, 360
Polymorphonuclear leukocyte: *see* Leukocytes
Positive end-expiratory pressure: *see* Pressure
Posture
chest wall compliance and, 1842
chest wall configuration, esophageal pressure and, 401
head-down tilt, plasma norepinephrine and renin activity and, 1068
head-up, pleural effusion, respiratory mechanics and, 1458
Potassium, plasma volume changes, middle-aged marathon runners, 559
Potassium ions, flux, β-adrenoceptor blockade effects, exercise and, 336
Potentials
action, calcium ion-dependent, small pulmonary arteries, 1389
membrane
hypoxia-induced activation, pulmonary artery, 113
medullary respiratory neurons, hypercapnia and hypoxia, 1208
Power, maximal output, muscle metabolism and, 132
Pressor reflex: *see* Reflexes
Pressure: *see also* Blood pressure
abdominal, chest wall distortion and, 295
airway
peak and maximal expiratory flow, 1733
respiratory drive and, 1747
transmission, lung edema and chest wall restriction, 1171
central venous, head-down tilt, norepinephrine and renin activity in, 1068

closing, pulmonary emphysema, 1704
diaphragmatic, phrenic nerve stimulation, 269
esophageal
chest wall configuration and, posture effects, 401
neck, lung volume dependence and, 1849
gradient, pleural, submerged lung lobes, 521
high, organ blood flow, 1369
oxygen, transcutaneous, probe temperature and, model, 1117
pleural liquid, measurement, rib capsule, 597
pleural surface, lung mechanics and, newborn (piglet), 434
positive end-expiratory
expiration against, 732
normo-, hyper-, and hypovolemia (pig), 1178
pulmonary C-fiber discharge and, 1085
protein osmotic, lung, awake state (sheep), 928
systolic, anti-G suit inflation in 1-G environment, 1145
transpulmonary and driving, collateral gas flow and, lung, 1757
venous, bronchial, lung lumph flow and (sheep), 1249
wedge, large and small pulmonary arteries, 1329
Pressure-flow relations
collateral gas flow, lung, 1757
endotracheal tubes, high-frequency ventilation and, 3
Pressure-volume relations
high altitude, lung and thorax, 1773
lung, asthma, 1590
Progesterone, thermoregulatory responses and, 1902, 1911
Promethazine, pretreatment, oleic acid-induced injury, 39
Prontosil, sarcolemmal carbonic anhydrase, skeletal muscle, 548
Propranolol, hydrogen and potassium fluxes, exercise in, 336
Prostacyclin
antioxidant pretreatment and, hyperoxia-induced pulmonary vascular paralysis, 953
blood flow regulation, after pulmonary artery occlusion, 180
hypoxic vasoconstriction strength, lobar atelectasis, 72
Prostaglandin E_2, alveolar transfer of, isolated perfused lung (guinea pig), 691
Prostaglandins
airway hyperresponsiveness, ozone-induced, 1918
blood flow regulation, after pulmonary artery occlusion, 180
chemoreflexes, skeletal muscle, 56
cigarette smoking and, lung, 1815
substance P and, pulmonary vasculature, 1098
tachyphylaxis to inhlaed histamine and, anesthesia, 1350
Prostanoids, hypoxic vasoconstriction strength and, lobar atelectasis, 72
Protein
long-term clearance, lung, awake state (sheep), 928
plasma
changes, middle-aged marathon runners, 559
endogenous, edematous lungs, 1971
exercise at graded hypohydration levels and, 1394
pulmonary vascular leak, noninvasive measurement of, 564
volume and density changes, temperature effects, 1686
Protein synthesis, biochemical response, muscle shortening, 1159
Pulmonary artery
activation, hypoxia-induced, 113
bimodal respiration, circulation in (lungfish), 285
occlusion, blood flow regulation after, 180
small, hypoxic induction of calcium ion-dependent action potentials, 1389
wedge pressure in, pumonary venoconstriction and, 1329
Pulmonary C-fibers
discharge of, positive end-expiratory pressure effects, 1085
graded stimulation with capsaicin, diaphragmatic responses to, 1487
Pulmonary embolism: *see* Embolism
Pulmonary fibrosis: *see* Fibrosis
Pulmonary vasculature, substance P effects, 1098
Pulmonary vessels, measuring microcirculation, X-ray TV system, 1013
Pump, cardiac, performance in exercise, ventricular filling and, 1886
Pyrogen
endogenous
differences in fevers, 342
febrile responses to, 1254
febrile response to, species differences (rat, rabbit), 1721

Q

Quadriceps femoris, dynamic extension, exercise, model, 1647
Quadriplegia, ventilatory loading, respiratory response to, 1752

R

Radioaerosols, regional deposition, lung, 1828
Radioglucose, carbohydrate metabolism, exercise effects, 1627
Radionuclide imaging, pulmonary, neutrophil kinetics (sheep), 1796
Receptors
baroreceptors
cardiopulmonary, head-down tilt effects, 1068
stimuli, respiratory effects of, anesthesia and, 1258
cardiac, tonic vagal input effects, breathing pattern, newborn, 223
chemoreceptors
carotid, haloperidol-induced suppression of, 814
carotid, hypoxia and oxygen effects, tracheal constriction, 941
central, hypercapnia and hypoxia, 1208
cigarette smoke effects, awake state, 229
interspike interval dependency, 1566
peripheral denervation, breathing movements and, fetus (sheep), 575
tracheal caliber, 198
histamine, blood flow and bronchomotor tone (sheep), 254
J type
capsaicin stimulation of pulmonary C-fibers, 1487
pulmonary edema effects, airway mechanics, 1578
opioid, agonists, ventilation and oxygen consumption and, 959
pulmonary stretch, tracheal caliber, 198
stretch, chemosensitivity to nicotine (crayfish), 1597
vagal airway, anesthesia, hypercapnic ventilation and, 1090
vagal stretch, newborn, 218
Red cells: *see* Erythrocytes
Reflexes
cardiovascular, pulmonary C-fibers, 1085
chemoreflex
bradykinin-induced, skeletal muscle, 56
gains, comparison of two different methods, 170
hypercapnia, exercise hyperpnea during, 792
laryngeal, alcohol effects on apnea (lamb), 420
compensation, voluntary inspiration, immersion, 611
deflation-induced tracheal constriction, hypoxia and oxygen effects, 941
head-down tilt, norepinephrine and renin activity in, 1068
Hering-Breuer
airway occlusion and, infant, 847
hyperpnea of exercise (horse), 798
Hering-Breuer expiratory promoting, breathing pattern and, newborn, 223
lung stretch depressor, normo-, hyper-, and hypovolemia (pig), 1178
mechanoreflex, ventilatory, sinusoidal forcing effects (chicken), 991
pressor, muscular contraction and, neuraxis levels in, 459
tracheal, neural and humoral factors in, 198
vagal, pulmonary edema effects, airway mechanics, 1578
Regurgitation, infantile, airway mechanisms in, 716
Renin
active, oral contraceptive and exercise effects, health females, 1690
exercise effects, normoxemic and hypoxemic, 142
plasma activity
exercise training effects, 1410
forearm blood flow and, paraplegia, 924
graded hypohydration levels, exercise-heat stress, 1855
head-down tilt effects, 1068
normoxemic and hypoxemic exercise effects, 142
serum erythropoietin at high altitude and, 360
plasma level, endurance athletes, 947
Renin-angiotensin-aldosterone system, during hypoxemia, 1026
Renin-angiotensin system, oral contraception, exercise and, healthy females, 1690
Resistance
airflow, respiratory effects of nicotine, 64
airway
asthma, sulfur dioxide exposure during exercise, 784

Resistance (*continued*)
partitioning, pulmonary edema and, 1578
respiratory muscle function and, snoring during REM sleep, 328
bronchovascular, bronchial arterial blood flow and (sheep), 305
collateral, exercise-induced asthma, model, 1986
flow, respiratory system, anesthesia and, 647
pulmonary
antigen exposure and (sheep), 1866
endogenous cyclooxygenase effects, lung inflation and, 884
hindlimb muscular contraction and, 1521
ozone, parasympathetic nervous system and, 1879
respiratory unloading, awake state (pony), 1214
pulmonary vascular
edema, 242
high-frequency ventilation effects (lamb), 1104
respiratory, single-breath and forced oscillation methods, 262
vascular
hypoxic lungs and (pig), 1891
peripheral, anti-G suit inflation in 1-G environment, 1145
venous, wedge pressure in pulmonary artery and, 1329
Respiration
acute hypoxia, almitrine bismesylate effects, awake state, newborn, 18
augmented inspiration, cigarette smoke effects, awake state, 229
bimodal, circulatory adaptation (lungfish), 285
central adaptation, vagal input, 1072
changes, nasal muscle length, 453
distortion effects, lung mechanics, newborn (piglet), 434
dynamics of, chest wall distortion, 295
exercise hyperpnea, during hypercapnia, 792
expiration
hypercapnia effects, 1560
relaxed, volume-time profile during, 732
frequency, ventilatory volume of, sinusoidal forcing effects (chicken), 991
hilar nerve denervation effects, arterial carbon dioxide pressure during carbon dioxide inhalation (pony), 807
interspike dependency, arterial chemoreceptors, 1566
loaded
airway resistance and muscle function, snoring, REM sleep, 328
inspiratory muscle fatigue and, 1152
response to fatiguing resistive loads, awake state (sheep), 969
metabolic rate and, sleep, 384
movements, peripheral chemoreceptor denervation and, fetus (sheep), 575
nares breathing, switching to tracheostomy breathing, awake state (pony), 1214
neural control, hypothermia and, 1423
nicotine-induced effects, cigarette smoke, 64
opioids and, 1675
positive-pressure, aerosolized solute clearance and, 1242
protein and liquid clearance, lung, awake state (sheep), 928
rapid shallow breathing, cigarette smoke effects, awake state, 229
recurrent apnea, heart rate changes during, 536
response slopes, estimation of, 1623
spontaneous, inspiratory resistive loading in, diaphragm fatigue and, 1527
upper airway carbon dioxide effects, awake state (pony), 1222
vagal stimulation, expiratory effects of, newborn, 218
work of, breathing pattern and, 1834
Respiratory activity, rhythmic, pons, independent of medulla, 684
Respiratory control
adenosine, theophylline antagonism and, 1428
airway occlusion, muscle response, infant, 847
carotid chemoreception, haloperidol-induced suppression of, 814
chemical, carotid body chemodenervation (lamb), 869
exercise hyperpnea, during hypercapnia, 792
nasal muscle length, 453
ontogeny of, newborn, 1477
opioids and, 1675
peripheral chemoreceptor denervation and, fetus (sheep), 575
unloading, awake state (pony), 1214
upper airway carbon dioxide effects, awake state (pony), 1222
voluntary inspiration, immersion, 611
Respiratory distress syndrome
adult, pulmonary vascular resistance in edema, 242
high-frequency ventilation effects, premature lung (lamb), 1571
Respiratory drive, carbon dioxide partial pressure and, 1747
Respiratory exchange ratio, exercise, menstrual cycle effects, 1911
Respiratory frequency, optimal, ontogeny, newborn, 1477
Respiratory mechanics
chest wall distortion, 295
contractile properties, intercostal muscles, 528
input and transfer impedances, 492
lung expansion, body orientation effects, 481
measured with head generator, upper airway shunt, 1790
measurement, interrupter technique, anesthesia and, 647
single-breath method, forced oscillation method and, 262
Respiratory pattern
exercise and, 898
hypernea of exercise, hilar nerve afferents in (horse), 798
hypoxia and hypercapnia, 1955
inspiratory muscle endurance and, 1152, 1834
instrumentation and, 1515
tonic vagal input effects, newborn, 223
ventilatory response, fatiguing resistive loads, awake state (sheep), 969
Respiratory rate, different intensities of exercise and, 898
Respiratory system
impedance, during exercise, 365
mechanics, pleural effusion effects, 1458
nonlinearity of, forced oscillation technique and, 1654
Reticuloendothelial system, function, plasma fibronectin and heat stress mortality, 706
Rheology, mucus, airway model, 1766
Rib cage
abdomen and, compliance, age and posture effects, 1842
motion, chest wall distortion and, 295
Rib capsule, pleural liquid pressure measurement, 597
Running: *see* Exercise

S

Sarcolemma, extracellular carbonic anhydrase, skeletal muscle, 548
Selenium, deficiency, paraquat-induced lipid peroxidation, lung, 619
Serotonin
cigarette smoking and, lung, 1815
measurement of microcirculation, small pulmonary vessels, 1013
Sex differences
blood viscosity responses, exercise effects, 348
ozone inhalation, continuous exercise, 1601
plasma catecholamines, age-related augmentation, exercise and, 1033
plasma volume changes, middle age, 559
testosterone, muscle hypertrophy and, female, 24
trained and untrained males, epinephrine turnover, exercise effects, 1061
ventilation and chemosensitivity, testosterone effects, males, 1452
Shock, endotoxic, blood flow during, respiratory muscle and organ, 1802
Shunt
circulation, bimodal respiration and (lungfish), 285
pulmonary, prostanoids in lobar atelectasis, 72
Sinus nerve
carotid chemoreception, haloperidol-induced suppression of, 814
interspike dependency, arterial chemoreceptors, 1566
Skin
heat transfer pathways, fetus and mother (sheep), 634
oxygen pressure, probe temperature and, model, 1117
Sleep
apnea, recurrent, heart rate during, 536
rapid-eye-movement, hypoxemia during, chronic bronchitis and emphysema, 1698
REM, snoring, airway resistance and muscle function in, 328
REM and nonREM, metabolic rate, breathing and, 384
Sneeze, airway mechanisms, infantile regurgitation and, 716
Snoring, REM sleep, airway resistance and muscle function in, 328
Sodium-amino acid cotransport, alveolar epithelial cells, 1616
Soleus muscle, chronic shortening, biochemical response to, 1159
Solutes, aerosolized, clearance, lung volume and, 1242
Sonomicrometry, respiratory changes, nasal muscle length, 453

Species differences
febrile responses, endogenouse pyrogen (rat, rabbit), 1721
pleural space thickness, light microscopy, 603
Spectrometry
light, respiratory gas analysis, 1001
mass, probe, transcutaneous oxygen pressure and, 1117
Spinal cord
cervical, injury, respiratory response to ventilatory loading, 1752
muscular contraction, pressor reflex evoked by, 459
neuron responses, hypoxia and hypercapnia, 1201
Stimulants, respiratory, hypoglossal and phrenic electroneurograms, 105
Substance P, opposing hemodynamic effects, pulmonary vasculature, 1098
Substrates, exercise, preexercise meal and, 429
Succinate dehydrogenase, skeletal muscle, adaptive response to endurance training, 127
Sucrose, elastase and smoking effects, alveolar epithelial permeability (hamster), 96
Sudden infant death syndrome, postnatal maturation of respiration, carotid body chemodenervation and (lamb), 869
Sulfur dioxide, exposure during exercise, bronchoconstriction in asthmatics, 784
Sulfur hexafluoride, ventilation maldistribution, normal subjects, 838
Superoxide dismutase
exercise and, cardiotoxicity of doxorubicin, 1298
mitogenic effects of, hyperoxia tolerance, lung, 315
Supination, forearm, against inertial loads, mechanical output following muscle stretch, 78
Surfactant
alveolar, 660, 1055
changes, injury and recovery from hyperoxia, 1402
high-frequency ventilation effects, premature lung (lamb), 1571
lung, choline deficiency and, 738
Swallowing, airway mechanisms, infantile regurgitation and, 716
Sweating, menstrual cycle effects, 1902
Sympathectomy, heat, tail blood flow and, 1533
Sympathetic activity, lung periphery, awake state, 979
Sympathetic nerve, stimulation, heating, tail blood flow and, 1533
Sympathetic nervous system
heating, tail vasodilation, 1533
neurogenic pulmonary edema, model, 1019
submaximal exercise, sudden cardiac death and, 890

T

Tachyphylaxis, aerosolized histamine and, anesthesia, 1355
Tachypnea
breathing patterns and, 1152
capsaicin stimulation, pulmonary C-fibers, 1487
Temperature
environmental, varying, thermal history of response, 413
muscle metabolism and, physical performance, 766
probe, transcutaneous oxygen pressure and, model, 1117
regulation
fetus and mother (sheep), 634
rest and exercise, water, 248
volume and density changes, biological fluids, 1686
Temperature, body
brain, respiration during hypothermia and, 1423
endogenous pyrogen fevers, differences in, 342
esophageal, rest and exercise, water immersion, 248
febrile responses, endogenous pyrogen, 1254
menstrual cycle effects, 1902, 1911
raised, reasoning, memory, and mood in, 1823
rectal
exercise at graded hypohydration levels and, 1394
plasma volume changes, middle-aged marathon runners, 559
regulation, skin blood flow, paraplegia, 924
thermoregulatory changes, 413
Testosterone
muscle hypertrophy and, female, 24
ventilation, chemosensitivity and, males, 1452
Tetraplegia, submaximal exercise responses, 237
Theophylline, adenosine and, respiratory effects, 1428
Thermal dye, measurements, lung water, 673
Thermogenesis, caffeine, enhanced metabolic response to, 832
Thermoregulation
blood responses and, exercise at graded hypohydration levels, 1394
environmental temperature effects, 413
febrile responses, endogenous pyrogen and, 1254
fever, endogenous pyrogen and, species differences (rat, rabbit), 1721
menstrual cycle effects, 1902, 1911
Thermotolerance, plasma fibronectin and, 706
Thiourea, pulmonary vascular protein leak, noninvasive measurement, 564
Thoracic cavity, lung interaction, pleural effusion effects, 1458
Thorax, functional capacity, high altitude, 1773
Thromboxane
blood flow regulation, after pulmonary artery occlusion, 180
generation, ozone-induced airway hyperresponsiveness, 1918
hypoxic vasoconstriction strength, lobar atelectasis, 72
leukotriene B_4 effects and, airway hyperresponsiveness, 1941
pulmonary vascular paralysis, hyperoxia-induced, 953
substance P and, pulmonary vasculature, 1098
Thymidine kinase, DNA synthesis, aortic endothelial cells (pig), 1110
Time constants, regional expiratory flow, interdependence of, 1924
Tomography
computed, body orientation effects, regional lung expansion, 468, 481
positron emission, regional lung water and hematocrit determined by, 860
Torque-velocity relations, muscle fiber type and, vastus lateralis, 309
Toxicology, inhalation, lung burden, exercise effects, 1046
Trachea
caliber, neural and humoral factors in, 198
isolated segment, hypoxia and oxygen effects on constriction, 941
nerve stimulation, norepinephrine metabolism during, 1236
segment, respiratory effects of nicotine, 64
Tracheal epithelium, *p*-aminohippurate transport, 1585
Tracheal mucosa, calcium secretion in, 1191
Tracheobronchial tree, larynx effects, oscillatory flow, model, 160
Tracheostomy
breathing
awake state (pony), 1222
switching from nares breathing, awake state (pony), 1214
Training: *see* Exercise
Transmural nerve, stimulation, norepinephrine metabolism during, 1236
Traumatizer, small-animal, 658
Treadmill: *see* Exercise
Turbulence, pressure-flow relations, endotracheal tubes, 3

U

Uterus, heat transfer pathways, fetus and mother (sheep), 634

V

Vagal afferents, respiratory changes, nasal muscle length, 453
Vagotomy, breathing pattern and, newborn, 223
Vagus nerve
peripheral chemoreceptor denervation, breathing movements and, fetus (sheep), 575
stimulation
central adaptation, 1072
expiratory effects, newborn, 218
tonic input effects, breathing pattern, newborn, 223
Vasoconstriction
hypoxic
cardiac output increase, shunt and, 1313
cellular mechanism of, 1389
prostanoids and, lobar atelectasis, 72
hypoxic pulmonary, lung (pig), 1891
pulmonary
hypertension and, indomethacin (sheep), 443
substance P and, 1098
pulmonary artery, hypoxia-induced, 113
Vasodilation
metabolic, 2,4-dinitrophenol, limb, 698
tail, neural control during heating, 1533
Vasomotion, pulmonary, chronic cigarette smoking effects, 1815

Vasoreactivity
  increased, pulmonary hypertension and, indomethacin effects (sheep), 443
  pulmonary, high-frequency ventilation and (lamb), 1104
Vastus lateralis
  fiber types, trained and untrained athletes, 1716
  muscle fiber type, torque-velocity relations and, 309
Venoconstriction, pulmonary, wedge pressure and, 1329
Venous sampling, venous, estimation of ventilation-perfusion inequality, 376
Ventilation
  artificial, tracheal caliber, 198
  body orientation effects, regional lung expansion, 468, 481
  breathing patterns, after muscle fatigue, 1152
  chemosensitivity and, testosterone effects, males, 1452
  collateral
    β-sympathetic activity, awake state, 979
    transpulmonary and driving pressure effects, lung, 1757
  high-frequency
    gas exchange and pulmonary vascular resistance (lamb), 1104
    gas transport during, 1539
    pleural surface motion, photographic measurement of, 623
    premature lung (lamb), 1571
    pressure-flow relations, endotracheal tubes, 3
  hypercapnic, airway anesthesia effects, 1090
  inhomogeneities, multibreath nitrogen washout, children, 1137
  inspiratory resistive loading, diaphragm fatigue and, 1527
  maldistribution, normal subjects, 838
  mechanical, flow-limiting segments at residual volume, 502
  minute, hypoxia and hypercapnia, 1955
  neurogenesis, cerebral medulla, 684
  oxygen consumption and, opioid receptor agonist regulation of, 959
  positive-pressure, normo-, hyper-, and hypovolemia (pig), 1178
  pulmonary, hilar nerve denervation effects, carbon dioxide inhalation (pony), 807
  regional
    cigarette smoking and, 1828
    obesity effects, lateral decubitus position, 774
  sleep, young and elderly subjects, 1607
  submaximal exercise, tetraplegics and paraplegics, 237
Ventilation-perfusion relations
  gas exchange, pulmonary vascular resistance and (lamb), 1104
  inequality, noninvasive measurement, inert gas elimination, 376
Ventilation threshold, exercise training and, elderly males, 1472
Ventilatory control
  airway anesthesia and, 1090
  baroreceptor stimuli, anesthesia, 1258
  muscle function and, snoring, REM sleep, 328
Ventilatory dynamics, chemoreflex gains comparison, 170
Ventilatory pattern
  elastic loading effects, progressive exercise, 34
  sleep, young and aging subjects, 1607
Ventilatory response
  elastic loading effects, progressive exercise, 34
  hypoxia, hypercapnia and, 1955
  nicotine effects, cigarette smoke, awake state, 229
  resistive loads, fatiguing, awake state (sheep), 969
Ventral medulla, rewarming intermediate areas, respiration during hypothermia, 1423
Veratrine, neurogenic pulmonary edema, model, 1019
Volume
  biological fluids, temperature effects, 1686
  cardiac, anti-G suit inflation in 1-G environment, 1145
  lung
    aerosolized solute clearance and, 1242
    changes in air space dimensions, aerosols and, 875
    dependence, neck, esophageal pressure effects, 1849
    diaphragmatic length and, 1961
    estimation of response slopes, 1623
    hyaline membrane disease (monkey), 1783
    measurement, anesthesia and, 653
    regional, submerged lobes, 521
    regional gradients, pleural effusion effects, 1458
    serial determination, nitrogen washout, infant (monkey), 205
  nitrogen, measurement during nitrogen washout, 1008
  plasma
    changes in middle age, marathon runners, 559
    exercise at graded hypohydration levels, 1394
  residual, flow-limiting segments at, airway catheters and, 502
  stroke
    cardiac pump performance in exercise, 1886
    submaximal and peak exercise, 722
  tidal
    breathing patterns after muscle fatigue, 1152
    tissue measurement, edematous lung, 1548
    ventilatory responses to hypercapnia and hypoxia, 1955
  tissue, measurements, edematous lungs, 1548
  ventilatory, sinusoidal forcing effects on breathing frequency (chicken), 991
Volume-time profile, relaxed expiration, 732
Vomiting: *see* Regurgitation

W

Walking: *see* Exercise
Water
  body, heat acclimation and, 408
  evaporative loss
    environmental temperature effects, 413
    heat acclimation and, 408
  lung
    extravascular, tissue volume measurement, 1548
    hematocrit and, positron emission tomography, 860
    measurement, mean transit time approach, 673
    postmortem measurement (sheep), 592
  total body, tritiated water-dilution space prediction (partridge), 1383
Wave-speed theory, wall motion, expiratory flow limitation, 1304
Weight
  body, exercise and, 826
  water-to-dry ratio, postmortem lung water measurement (sheep), 592
Wheelchair ergometry: *see* Exercise
Wheeze, wall motion, expiratory flow limitation, 1304
White blood cells: *see* Leukocytes
Women, blood viscosity responses, exercise effects, 348

X

Xenon-127, regional ventilation, obesity and, 774
X-ray-sensitive Vidicon camera, microcirculation measurement, small pulmonary vessels, 1013

Author Index to Volume 59

Aanderud, L., 1369
Abraham, W. M., 254, 1416
Adams, E. M., 1955
Adams, G. K., III, 1866, 1874
Adams, R. P., 1647
Adams, S., 826
Adams, W. C., 1601
Adkinson, N. F., 953
Aizawa, H., 1918, 1941
Akabas, S. R., 969
Al-Bazzaz, F. J., 1191
Albert, R. K., 1555
Aldrich, T., 1527
Almi, A., 426
Altose, M. D., 1747, 1752
Amery, A., 947
Andersen, P., 1647
Anderson, D. L., 1464
Anthonisen, N. R., 28, 1090
Appel, D., 1527
Apple, F. S., 149
Armengol, J. A., 653
Armstrong, R. B., 1322
Arnup, M. E., 1090
Atkins, J. M., 392

Baier, H., 884
Baldwin, K. M., 639, 1440
Ballam, G. O., 991
Banzett, R. B., 611
Baritussio, A., 1055
Barstow, T. J., 101
Bates, J. H. T., 732
Bazzy, A. R., 969
Beaver, W. L., 935, 1936
Beckett, W. S., 1879
Bellina, L., 1055
Bellville, J. W., 170
Bennett, W. D., 875, 1046
Berkenbosch, A., 170
Bernheim, H. A., 342, 1721
Berry, C., 211
Berthiaume, Y., 928
Besch, E. L., 408, 413
Bethel, R. A., 1918, 1941
Bhalla, R. C., 758
Bianchi, A. L., 1201, 1208
Billman, G. E., 890
Bisgard, G. E., 798, 807, 1214, 1222
Bizios, R., 1796
Bledsoe, T. A., 684
Bloomfield, S. A., 853
Bocci, V., 426
Boddener, A., 732
Botterman, B. R., 459
Bouma, B. N., 1690
Bradley, T. D., 1364
Breen, P. H., 1313
Brengelmann, G. L., 924
Brigham, K. L., 443, 592
Brimmer, C. J., 916
Bromberger-Barnea, B., 979, 1986
Brouillette, R. T., 105
Brown, E. G., 1495
Brown, I. G., 1849
Brown, S. E. S., 1616
Brück, K., 1902, 1911
Bruni, R., 1055
Brunner, J. X., 1008
Bryan, C., 1571
Brzezińska, Z., 766
Bureau, M. A., 369
Burhop, K. E., 1726
Burks, J., 898
Burns, C. B., 1590
Butler, B. D., 543
Butler, J., 180, 1171, 1555
Butler, J. P., 3, 623
Buttrick, P. M., 1861
Byrnes, W. C., 710

Cadarette, B. S., 1929
Cain, S. M., 698
Caldwell, G. E., 78
Calverley, P. M. A., 647, 1698
Carli, F., 647
Carlo, W. A., 847
Carraro, R., 1055
Cartledge, J. T., 1128
Casal, D. C., 149
Cassell, J. F., 821
Cassidy, S. S., 1487, 1773
Castele, R. J., 1747
Caton, J. R., 101
Catterall, J. R., 1698
Cauberghs, M., 1654
Chamberlain, M. J., 1828
Chander, A., 738, 743
Chang, H. K., 160, 242, 262
Chapler, C. K., 698
Chapman, A. E., 78
Chapman, G. A., 1416
Chapman, K. R., 34
Charan, N. B., 305, 1249
Chartrand, D., 732
Chen, C. L., 408
Cheney, F. W., 1971
Cherniack, N. S., 453, 1560
Chester, J. F., 1665
Chi, E. Y., 1783
Chimarusti, S. P., 639
Christensen, N. J., 1061, 1640
Chung, D.-C. C., 1607
Chung, K. F., 1918
Ciambrone, G., 1861
Ciske, P. E., 1434
Claassen, H., 320
Clanton, T. L., 991, 1834
Clarkson, P. M., 710
Clarysse, I., 401
Claustre, J., 12
Clément, A., 1110
Clement, J., 1654
Cloutier, M. M., 1585
Coast, J. R., 1487
Coates, G., 1185
Codias, E., 1416
Coggan, A. R., 429
Cohn, J. N., 1068
Colice, G. L., 142, 1026
Collins, J. C., 592
Conley, K., 320
Connors, A. F., 1747
Cook, J. D., 1991
Cooper, D. M., 211
Cooper, J. A., 1796
Cosio, M., 1815
Costill, D. L., 1350
Côté, J., 832
Cotes, P. M., 360
Cottet-Emard, J. M., 12
Coulson, R. L., 101
Coutts, K. D., 237
Coyle, E. F., 429, 853
Crandall, E. D., 1290, 1616
Crawford, A. B. H., 838
Cromydas, G., 1947
Crum, B. G., 1383
Culver, B. H., 1171
Cumming, G., 1008
Cunningham, D. A., 1472
Custer, J., 1539

Dale, P. S., 634
Dalle, D., 869
Dannenberg, A. M., Jr., 1866
Dauber, I. M., 564
Davies, N. J. H., 376
Davis, H. M., 1823
Davis, H. W., 1298
Davis, J. A., 935
Dawson, C., 1389
Dawson, C. A., 113
Deal, E. C., Jr., 1560
Decramer, M., 262, 528, 732
DeGoede, J., 170
DeLaney, R. G., 285
Demedts, M., 401
Dempsey, J. A., 328, 365
Derkx, F. M. H., 1690
De Troyer, A., 528, 1842
Didelon, J., 1790
DiMarco, A. F., 1752
Dixon, G. F., 1834
Djamil, R., 1446
Dodia, C., 743
Donnelly, D. F., 814, 1566
Douglas, N. J., 1698
Dove, E. L., 1258
Downes, H., 92
Drake, J., 1834
Drazen, J. M., 3, 623
Dubaybo, B. A., 266
DuBose, D. A., 706
Dudley, G. A., 1446
D'Urzo, A. D., 34
Dutton, R. E., 814, 1566
Duvivier, C., 492, 1790

Easton, P. A., 1090
Edelman, N. H., 1675
Edgerton, V. R., 639
Effros, R. M., 673
Eitzman, P. D., 1809
Eldridge, F. L., 1423, 1428
Eldridge, M. A., 1766
El Fawal, H., 254
Engel, L. A., 838
Enzi, G., 1055
Epstein, R. H., 1773
Erich, W. B. M., 1690
Estenne, M., 1842
Eyre, P., 254
Ezekowitz, M. D., 985
Fagan, J. M., 1159
Fagard, R., 947
Farkas, G. A., 528, 536
Farrell, S. W., 154
Farrukh, I. S., 953
Faulkner, J. A., 119, 1434
Favre, R., 12
Feigl, E. O., 1660
Ferguson, E. W., 348
Fielding, R. A., 1350
Findley, L. J., 536
Fink, W. J., 1350
Finkelstein, J. N., 660
Fisher, A. B., 619, 738, 743
Fishman, A. P., 285, 580
Fitts, R. H., 916
Fitzgerald, R. S., 1376
Fleg, J. L., 1033
Flenley, D. C., 1698
Flynn, C., 798, 807, 1214, 1222
Flynn, E. T., 1503
Ford-Hutchinson, A. W., 354
Forman, H. J., 619
Forster, H. V., 798, 807, 1214, 1222
Foulon, P., 869
Fox, G., 295
Francesconi, R. P., 1394, 1855
Francis, G. S., 1068
Francis, R. S., 658
Frank, L., 315
Franken, H., 1654
Fraser, R. B., 1001
Frazier, D. T., 229, 1597
Frazier, J. W., 1145
Fredberg, J. J., 1924
Freed, A. N., 1986
Freund, P. R., 924
Frishberg, B. A., 154
Froese, E. A., 309
Frykman, P. N., 710
Fuyuki, T., 1578

Gadek, J. E., 1834
Gagnol, J. P., 890
Galbo, H., 1061, 1627, 1640
Gale, G. E., 376
Gallagher, C. G., 1152
Gallina, C., 492, 1790
Gardner, G. M., 87
Garrett, R. C., 72
Gärtner, A., 548
Gavriely, N., 3
Gawne, T., 348
Geers, C., 548
Gilbert, R. D., 634
Gilchrist, S., 1128
Gillis, C. N., 691
Glass, M., 619
Gold, W. M., 64
Goldblum, S. E., 1978
Goldsmith, S. R., 1068
Gollnick, P. D., 127
Goodman, B. E., 1616
Goodyear, C. D., 1145
Gosnell, B., 96
Gottfried, S. B., 647, 1752
Graham, T., 132
Grassman, E. D., 1145

Grauwels, R., 947
Green, M. A., 860
Greene, E. R., 722
Greene, J. G., 792
Greenleaf, J. E., 766
Griscom, N. T., 1961
Groeseneken, D., 947
Grogaard, J., 420
Grønlund, J., 1117
Gropper, M. A., 597
Gros, G., 548
Grossman, R. F., 1364
Grover, R. F., 1773
Grunstein, M. M., 1098, 1477
Gumbay, R. S., 1098
Gurtner, G. H., 953
Gwosdow, A. R., 408, 413

Haddad, G. G., 959, 969
Haidet, G. C., 183, 190
Hakim, T. S., 242, 1329, 1815
Hales, C. A., 1539
Haller, R. G., 1991
Hamel, R., 354
Hamlin, R. L., 1298
Hansen-Flaschen, J. H., 580
Hanson, M. A., 18
Harder, D. R., 113, 1389
Harf, A., 262
Hargreaves, M., 1350
Harold, W. H., 774
Harris, T. R., 592
Harrison, G., 909
Hartiala, J. J., 64
Hartung, G. H., 559
Haschke, R., 1971
Haselton, F. R., 580
Haxhiu, M. A., 453
Hazucha, M., 784
Heber, D., 935
Heigenhauser, G. J. F., 132
Helgerson, R. B., 1726
Hemmert, M. K., 429
Herrick, R. E., 1440
Hessemer, V., 1902, 1911
Hey, D. H., 1249
Hida, W., 1578
Higgs, B. D., 647
Hills, B. A., 543, 660
Hinchey, M. J., 1304
Hinghofer-Szalkay, H., 1686
Hirose, T., 1918
Hirshman, C. A., 92
Hlastala, M. P., 1667
Hodson, W. A., 1783
Hoeffel, J. M., 1548
Hof, V. I., 1152
Hoffer, R. E., 1214, 1222
Hoffman, E. A., 468, 481
Hoffstein, V., 1304, 1849
Hogg, J. C., 1266
Hoidal, J., 96
Holden, W. L., 248
Holland, R. L., 1823
Holloszy, J. O., 826, 853
Holm, B. A., 1402
Holtzman, M. J., 1941
Homer, L. D., 1503
Hoppeler, H., 320
Horstman, D. H., 784, 1879
Horwitz, L. D., 1886
House, D. E., 1879
Houston, M. E., 309
Howald, H., 320
Howell, L. L., 1145
Howell, S., 1376
Hsieh, S. S., 710
Hubbard, R. W., 1855
Hübscher, U., 1110
Huchon, G. J., 1548
Huisveld, I. A., 1690
Hunt, C. E., 105
Hurewitz, A. N., 774
Hussain, S. N. A., 365, 1802
Hyatt, R. E., 1924

Ichinose, M., 1578
Ikegami, M., 1571
Inbar, G. F., 821
Ingram, R. H., Jr., 1590, 1733
Inoue, H., 1578
Ishii, M., 1578
Ivy, J. L., 149, 154
Iwamoto, G. A., 459

Jackson, J. C., 1783
Jackson, J. H., 1995
Jacobs, H., 1571
Jadue, C., 1090
Jansen, J. R. C., 1178
Jaspers, S. R., 1159
Jay, M., 1978
Jayaram T., 1191
Jeanneret, C., 1196
Jennings, T. J., 1145
Jibelian, G., 1548
Jindal, S. K., 180
Jobe, A., 1571
Jobin, M., 832
Johnson, E. C., 722
Johnson, J. M., 1533
Johnson, R. L., Jr., 1773
Jones, N. L., 132
Jones, R. L., 653
Juhlin-Dannfelt, A., 336
Junod, A. F., 1110

Kaciuba-Uścilko, H., 766
Kaminski, R. P., 991
Kamm, R. D., 1539
Kanter, M. M., 1298
Kaplowitz, M. R., 603
Karlsson, J., 1716
Katona, P. G., 1258
Katz, A., 336
Katz, S. A., 1660
Kaufman, M. P., 459, 1085, 1521
Kawamura, T., 634
Kay, J., 1185
Kay, J. M., 1027
Keatinge, W. R., 1823
Kehrl, H. R., 784
Kelley, J. L., 985
Kelling, J. S., 1752
Kelly, G., 218, 223
Kelsen, S. G., 1560
Kiley, J. P., 1423, 1428
Kim, C. S., 1766
Kim, K. J., 1290, 1616
King, D. S., 1350
King, E. G., 653
King, M., 1815
Kircher, K. W., 1236
Kirk, W., 180, 1555
Kitterman, J. A., 575
Kjaer, M., 1061
Kleeberger, S. R., 1866, 1874
Klein, H. G., 1495
Klemka, L., 105
Koen, P. A., 269
Koizumi, M., 315
Korthuis, R. J., 39
Kowalchuk, J. M., 132
Kozlowski, S., 766
Kraemer, R., 1137
Kranz, H., 821
Krell, W. S., 1458
Kruk, B., 766
Kuhn, F. E., 24
Kunz, A. L., 991

Labrie, A., 832
LaFramboise, W. A., 205, 1040
Lai-Fook, S. J., 597, 603
Lakatta, E. G., 1033
Lakshminarayanan, S., 180
Lamarche, J., 869
Lamarra, N., 211
Langenstein, H., 1008
Lanken, P. N., 580
Lansing, R. W., 611
Laughlin, M. H., 1322
Laurent, P., 285
Lauritzen, S. K., 1601
Lazar, N. M., 1242
LeBlanc, J., 832
Leblanc, R., 1304
LeBon, T. R., 1290
Lee, C.-C. H., 575
Lee, L.-Y., 229
Lee, S., 1266
Legant, P. M., 1333
Lehr, J. L., 623
Leikauf, G. D., 1918, 1941
Lesniak, K. M., 1585
Leunberger, P. J., 1333
Levine, L., 1929
Levite, H. A., 1861
Lewis, S. F., 1991
Lexell, J., 1228
Li, G., 137
Lickley, H. L. A., 1272, 1282
Lijnen, P., 947
Lillo, R. S., 1503
Lindenfeld, J., 1886
Lindstedt, S. L., 320
Lipavsky, A., 1242, 1548
Lipset, J. S., 1333
Lockhat, D., 1164
Long, W. M., 254
Longhurst, J. C., 56, 183, 392
Lopata, M., 1947
Loring, S. H., 3, 1961
Lowe, R. C., 429
Lowry, O. H., 853
Luce, J. M., 1242
Lue, F., 1364
Luijendijk, S. C. M., 1343
Lyager, S., 1733

MacIntosh, A. M., 1440
MacNee, W., 1698
Madden, J. A., 113, 1389
Magder, S., 1164
Makowska, M., 838
Malik, A. B., 1796
Malt, R. A., 1665
Man, S. F. P., 691
Mapp, C., 64
Marcus, K. D., 1410
Marini, J. J., 1171
Marks, J. D., 1242
Marlot, D., 223
Maron, M. B., 1019
Martin, B. A., 1266
Martin, D. G., 348
Martin, J. G., 1355
Martin, R. J., 847
Martin, T. P., 639
Martin, W. H., III, 853
Martinez, D., 1364
Massaro, D., 315
Matalon, S., 1402
Matsumoto, N., 1578
Matthay, M. A., 928
Maughan, R. J., 710
Max, S. R., 24
Mayers, I., 1313
McBrayer, R. H., 269
McCartney, N., 132
McClean, P. A., 1849
McCooke, H. B., 18
McCreary, J., 706
McCullough, R. E., 909
McCullough, R. G., 909
McCully, K. K., 119
McDermott, M., 1452
McDonnell, W. F., 1879
McEvoy, R. D., 376
McKenzie, D. C., 237
McKneally, S. S., 1495
McLean, T., 1266
McNabb, L., 1027
Mead, J., 1961
Meatherall, R. C., 1090
Meister, B., 1137
Mellins, R. B., 1333
Mengeot, P.-M., 647
Menkes, H. A., 979, 1986
Menon, A. P., 716
Menon, A. S., 160
Merola, A. J., 1298
Messina, M. S., 509, 515, 1046
Meyer, R. E., 1464
Meyrick, B., 443
Micco, A. J., 909
Michael, J. R., 953
Michel, R. P., 242
Mikines, K. H., 1640
Milic-Emili, J., 262, 647, 732
Milledge, J. S., 360
Miller, M. J., 847
Miller, W. J., 154
Millhorn, D. E., 1423, 1428
Millman, R. P., 1607
Mink, S. N., 28, 1704
Mintun, M. A., 860
Mitchell, G. S., 198
Mitchell, J. H., 183, 459, 1521
Mitchell, R. A., 64
Mitzner, W., 875
Moalli, R., 691
Moas, R., 884
Moldofsky, H., 1364
Molé, P. A., 101
Mollinger, L. A., 87
Monge, C. C., 1495
Moore, L. G., 909
Moore, R. L., 127, 190
Morgan, M. A., 985
Morgan, W. K. C., 1828
Mortola, J. P., 295, 434
Morton, R. F., 229
Motohara, S., 392
Mullin, W. M., 1440
Murai, D. T., 575
Murphy, J. H., 1783
Murray, F. J., 1548
Murray, J. F., 1242

Murray, M. P., 87
Muscettola, M., 426
Musch, T. I., 183, 190
Muza, S., 1855
Muza, S. R., 1394
Myhre, L. G., 559

Nadel, J. A., 1918, 1941
Nagy, K. A., 1383
Nazar, K., 766
Nessly, M. L., 1971
Newman, J. H., 592
Nichols, B. G., 101
Niedermeyer, M. E., 443
Niewochner, D., 96
Ninomiya, I., 1013
Nolan, W. F., 814, 1566
Notter, R. H., 660, 1402
Nunnally, R. L., 1991
Nunneley, S. A., 559

O'Brodovich, H., 1185
O'Brodovich, H. M., 1333
O'Byrne, P. M., 1918, 1941
Ogletree, M. L., 443
O'Leary, D. S., 1533
Olievier, C. N., 170
Oliven, A., 1560
Olson, L. E., 521, 1757
Olson, N. C., 1464
Önal, E., 1947
Onarheim, J., 1369
Oppenheimer, L., 1313, 1704
O'Quin, R. J., 1171
Ordway, G. A., 183, 190, 392, 1085
Ott, P., 1196

Pack, A. I., 1607
Paiva, M., 838
Palmer, S., 1783
Pan, L. G., 798, 807, 1214, 1222
Pandolf, K. B., 248, 1394, 1855, 1929
Pang, L. M., 1333
Pangburn, P., 1548
Pardy, R. L., 365
Parker, D. E., 985
Parker, J. C., 1128
Parker, N. B., 1995
Parsons, D., 190
Patterson, G. A., 1891
Paulesu, L., 426
Pavlin, D. J., 1971
Peach, M. J., 47
Pearson, M. G., 1828
Pederson, O. F., 1733
Peheim, E., 1196
Perez, W., 1515
Permutt, S., 1891
Peslin, R., 492, 1790
Peswani, R., 1823
Pettenazzo, A., 1055
Peyrin, L., 12
Phillipson, E. A., 1364
Pickett, C. K., 1452
Pietra, G. G., 580
Pitt, B. R., 691
Pitts, C., 1555
Planas, R. F., 269
Pluss, W. T., 564
Polacheck, J., 1072
Poon, C.-S., 792
Power, G. G., 634
Proctor, R. A., 1726
Pu, J.-Z., 935
Pyszczynski, D., 28

Quintinskie, J. J., 137

Raetz, C. H. R., 1726
Raff, H., 1026
Ramirez, G., 142, 1026
Rebuck, A. S., 34
Rechnitzer, P. A., 1472
Reeves, J. T., 909
Reid, M. B., 611
Repine, J. E., 1995
Rhodes, E. C., 237
Richter, E. A., 1061, 1640
Riedy, M., 127
Ringelhann, A., 1654
Ripley, R., 305
Ritman, E. L., 481
Rochester, D. F., 528, 536
Rock, P., 1891
Rodarte, J. R., 521, 1458, 1924
Roger, L. J., 784
Rogers, M. A., 149
Rossi, A., 647, 1055
Roth, A. C., 1660
Roussos, C., 1164, 1376, 1802
Roy, R. R., 639
Russell, J. A., 1236
Russi, E. W., 1416
Rutherford, R., 1364
Ryan, J. W., 1995
Rybicki, K. J., 459, 1521

Sada, K., 1013
Sadoul, N., 969
Saetta, M., 295
Sahlin, K., 336
Saltin, B., 1647
Sampson, P. M., 580
Samson, P., 832
Sandaert, T. A., 1783
Sandoval, J., 1313
Santen, R. J., 1452
Santiago, T. V., 1675
Sarnquist, F., 1495
Sawatzky, R. P., 1304
Sawka, M. N., 248, 1394, 1855, 1929
Sayers, J. A., 1823
Schaeffer, J. I., 959
Schaible, T. F., 1861
Schalekamp, M. A. D. H., 1690
Schefft, G. L., 716
Scheuer, J., 1861
Schmid, R. P., 96
Schneider, B. K., 1452
Schoomaker, E. B., 348
Schreuder, J. J., 1178
Schröder, H., 634
Schumacker, P. T., 749, 1313
Schuster, D. P., 860
Schutte, J. E., 1773
Schwartz, P. J., 890
Sciuto, A. M., 953
Seaworth, J. F., 1145
Selbie, W. S., 78
Sembrowich, W. L., 137
Sepic, S. B., 87
Shapiro, C. M., 1698
Sharma, R. V., 758
Shasby, D. M., 47
Shasby, S. S., 47
Shaw, J. G., 722
Sherman, W. M., 149, 154
Sherrill, D. L., 1623
Shigeoka, J. W., 142
Shimada, S. G., 1721
Shinbane, J. S., 1290
Shirai, M., 1013
Shore, E. T., 1607
Shore, S., 1355
Siegle, J., 1402
Silage, D. A., 1607
Sjøgaard, G., 1647
Sjöström, M., 1228
Skatrud, J. B., 328
Slutsky, A. S., 3
Smaldone, G. C., 502, 509, 515, 1046
Smith, B., 295
Smith, C. M., 376
Smith, E. J., 814, 1566
Smith, E. K., 826
Smith, P. L., 502
Snapper, J. R., 592
Solimano, A., 1571
Solway, J., 3
Sonne, B., 1061, 1627, 1640
Sowders, L., 706
Spannhake, E. W., 979, 1866, 1874
Spriet, L. L., 132
Sprung, C. L., 254
Spurr, G. B., 87
Staessen, J., 947
Stainsby, W. N., 1809
Stalcup, S. A., 1333
Standaert, T. A., 205, 1104
Starling, J. R., 1726
Staub, N. C., 928
Stäuble, U. P., 1196
Stäubli, M., 1196
Stebbins, C. L., 56
Stevenson, J. S., 1416
Stitt, J. T., 342, 1254, 1721
St. John, W. M., 684, 1201, 1208
Stone, H. L., 890, 985
Straub, P. W., 1196
Suggett, A. J., 749
Sullivan, K. J., 434
Sullivan, P. A., 1304
Sumners, C., 1809
Sundell, H., 420
Susskind, H., 774
Sutherland, M. W., 619
Sutton, J. R., 132
Swanson, G. D., 1623
Sylvester, J. T., 1891

Takishima, T., 1578
Tanaka, D. T., 1098, 1477
Taylor, A. E., 39
Taylor, C., 1228
Taylor, G. E., 39
Taylor, R. F., 1597
Taylor, W. F., 1533
Taylor, W. R., 1590
Ter-Pogossian, M. M., 860
Tesch, P. A., 1716
Thach, B. T., 716
Thet, L. A., 266
Thomas, H. M., III, 72
Thomas, S. G., 1472
Thompson, J., 1472
Thorboe, A., 1647
Tipton, C. M., 1410
Tischler, M. E., 1159
Tobin, M. J., 1515
Tomanek, R. J., 758
Toner, M. M., 248
Townsley, M. I., 39
Tranmer, B. I., 909
Trippenbach, T., 218, 223
Trow, R. S., 564
Truog, W. E., 1104, 1783
Tuck, R. E., 205
Tucker, A., 909
Tucker, D. M., 559
Turk, G. M., 305, 1249
Turney, S. Z., 1001
Tyssebotn, I., 1369
Tzankoff, S. P., 1033

Ueki, I., 1918
Ueki, I. F., 1941
Unruh, H. W., 1704
Unverferth, D. V., 1298

Van den Abbeele, A., 420
Van der Kooij, A. M., 1343
Van de Woestijne, K. P., 1654
VanGrondelle, A., 564
Vanhees, L., 947
Van Lunteren, E., 453
Vaughn, W. K., 592
Venegas, J. G., 1539
Versprille, A., 1178
Vidruk, E. H., 198, 941
Vining, M., 826
Vinitski, S., 1828
Viti, A., 426
Vock, P., 320
Voelkel, N. F., 1955
Voyles, W. F., 722
Vranic, M., 1272, 1282

Waber, U., 1196
Wagner, E. M., 1866, 1874
Wagner, P. D., 376, 749
Waldrop, T. G., 459, 1085
Walker, B. R., 1955
Wall, M. A., 274
Wallen, L. D., 575
Walters, T. J., 429
Wang, C. G., 242, 1815
Wangensteen, D., 96
Wanner, A., 254, 884, 1416
Ward, D. S., 170
Warren, P. M., 1698
Wasserman, D. H., 1272, 1282
Wasserman, K., 211, 935, 1936
Watchko, J. F., 1783
Weber, M. E., 160
Webster, P. M., 1304, 1849
Weeks, S., 295
Weese-Mayer, D. E., 105
Weibel, E. R., 320
Weil, J. V., 564, 909, 1452
Weinmann, G. G., 979
Weitzman, S. A., 1665
Wells, J. R., 1616
Welsh, M. J., 1999
Wenger, C. B., 2002
West, J. B., 749
Westerman, P. A., 623
Whipp, B. J., 935, 1936
White, C. W., 1995
White, D. P., 1452
White, J. S., 710
Wickersham, N. E., 592
Widdicombe, J. H., 1999

Wiener-Kronish, J. P., 597
Wigutoff, S., 348
Will, J. A., 1726
Williams, J. B., 1383
Wilson, T. A., 521, 1924
Winslow, N. J., 1495
Winslow, R. M., 1495
Wolff, G., 1008
Wood, L. D. H., 1313
Woodrum, D. E., 205, 1040, 1783
Worthen, G. S., 1098
Wu, J. N.-S., 1242
Wu, K.-M., 1978

Yerger, L., 884
Yerger, L. D., 254
Yernault, J. C., 1842
Yost, R. W., 738
Younes, M., 898, 1072, 1152
Young, A. J., 1394, 1855, 1929

Zamel, N., 1364, 1849
Zatz, S. L., 623
Zidulka, A., 1329
Zin, W., 262
Zin, W. A., 732
Zocchi, L., 647
Zwillich, C. W., 1452